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SPECIFICATION    Technical architectural specifications  
Issued for tender – rev. 2

TITLE:                Replacement of roof and exterior wall metallic siding  
Harrington Harbour federal wharf shed

File No.:            R.062800.001

DATE:                November 14th, 2013



**SPECIFICATION**      Technical architectural specifications  
Issued for tender – rev. 1

**TITLE:**                      Replacement of roof and exterior wall metallic siding  
Harrington Harbour federal wharf shed

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## **PART 1 - GENERAL**

### **1.1 Context of work**

- .1 Harrington Harbour (50 30'00"N 59 28'47"W) is a village of about 300 inhabitants located on a small island of the Lower North Shore and is only accessible by boat or by helicopter from the municipality of Chevery. There are no airfields or conventional roads on the island. Wooden sidewalks are used as travel paths and inhabitants move around only by ATV.

The one-storey shed is mainly composed of a goods warehouse and a few service rooms scattered on the first floor and mezzanine. The surface area is approximately 350 m<sup>2</sup> and the shed is about 8,6 m high.

### **1.2 Work sequence**

- .1 Execute Work in stages to accommodate Departmental Representative's continued use of premises during construction.
- .2 Co-ordinate Progress Schedule with use of premises.
- .3 Proceed with Work in stages to provide for continuous usage of premises. Do not close off public usage of facilities until use of one stage of Work will provide alternate usage.
- .4 Maintain fire access/control and provide fire fighting capabilities.

### **1.3 Contractor use of premises.**

- .1 Limit use of premises for Work to allow:
  - .1 Departmental Representative occupancy;
- .2 Co-ordinate use of premises under direction of Departmental Representative.
- .3 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.
- .4 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Departmental Representative.
- .5 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

### **1.4 Departmental Representative occupancy**

- .1 Departmental Representative will occupy premises during entire construction period for execution of normal operations.
  - .2 Co-operate with Departmental Representative in scheduling operations to minimize conflict and to facilitate Departmental Representative usage.
-

### **1.5 Transportation of equipment and tools**

- .1 Work site is only accessible by boat or helicopter from the small municipality of Chevery. There are no airfields or conventional roads on the island.
  - .1 Water taxi service  
Bryce Anderson, Harrington Harbour  
Harrington Harbour (QC)  
G0G 1N0  
Tel: (418) 795-3230
- .2 Equipment, tools and labour must be transported by boat to Harrington Harbour.
- .3 There are two options for the supplying of equipment and tools by boat:
  - .1 Desgagnés Group serves Harrington Harbour departing from Rimouski once per week:  
Relais Nordik inc.  
17 Avenue Lebrun  
C.P. 1113, Succ. A  
Rimouski (Québec) G5L 7R1  
Canada  
  
Tel: (418) 723-8787  
1-800-463-0680  
Fax: (418) 722-9307
  - .2 A shuttle service serves Harrington Harbour from Newfoundland via Blanc-Sablon twice a day.

### **1.6 Alterations, additions or repairs to existing building**

- .1 Execute work with least possible interference or disturbance to normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

### **1.7 Existing utility services**

- .1 Notify Departmental Representative and utility companies of intended interruption of services and obtain required permission.
- .2 Establish location and extent of service lines in area of work before starting Work. Notify Departmental Representative of findings.
- .3 Submit schedule to and obtain approval from Departmental Representative for any shut-down or closure of active service or facility including power and communications services. Adhere to approved schedule and provide notice to affected parties.
- .4 Provide temporary services when directed by Departmental Representative to maintain critical building and tenant systems.

### **1.8 Documents required**

- .1 Maintain at job site, one copy of each document as follows:
  - .1 Contract drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Reviewed shop drawings.
  - .5 List of outstanding shop drawings.

- .6 Change orders.
- .7 Other modifications to contract.
- .8 Field test reports.
- .9 Copy of approved work schedule.
- .10 Health and safety plan and other safety related documents.
- .11 Other documents as specified.

### **1.9 Explanation of terms**

- .1 In the present documents, the term Representative of the Ministry and Departmental Representative refer to the same person.

## **PART 2 - PRODUCTS**

### **2.1 Not Used**

- .1 Not Used.

## **PART 3 - EXECUTION**

### **3.1 Not Used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Use of site and facilities**

- .1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Departmental Representative to facilitate work as indicated.
- .2 Maintain existing services to building and provide for personnel and vehicle access.
- .3 Where safety is reduced by work provide temporary means to maintain safety of persons and property.
- .4 Departmental Representative will assign sanitary facilities for use by Contractor's personnel. Keep facilities clean.
- .5 Protect work with temporary measures until permanent closures are installed.
- .6 Work on building must be carried out while maintaining continuity of site operations. The Contractor shall therefore take the derived constraints into consideration, i.e., continuity of transshipment activities, storage of merchandise, and commercial activities carried out in office area of shed, all of which in accordance with the health & safety codes and standards regarding both occupants and property.

### **1.2 Alterations, additions or repairs to existing building**

- .1 Execute work with least possible interference or disturbance to building operations and normal use of premises. Arrange with Departmental Representative to facilitate execution of work.

### **1.3 Special requirements**

- .1 Submit work schedule to Departmental Representative.
- .2 Ensure Contractor's personnel employed on site becomes familiar and comply with regulations including fire prevention, traffic and security.
- .3 Keep within limits of work and avenues of ingress and egress.
- .4 Access of Contractor vehicles on site is limited.

### **1.4 Smoke-free environment**

- .1 Comply with smoking restrictions. Smoking is not permitted in building.

### **1.5 Work schedule**

- .1 Contractor to provide work schedule in accordance with Section 01 32 16.07 – Construction progress schedule - bar (GANTT) chart in which transportation delays and delivery dates are clearly identified.

### **1.6 Compliance with timeframe**

- .1 The Contractor shall take all measures required to comply with the work's date of final acceptance. He shall provide in his contract the necessity to perform overtime or the addition of a second work team.
  - .2 The Contractor may perform work during statutory holidays or during weekends conditional to obtaining the required approvals from Departmental Representative, but the Contractor may not claim any additional amounts paid for overtime (time and a half or double time).
  - .3 The Contractor is exclusively responsible for the co-ordination of his work with that of other trades (subcontractors) or suppliers toward the complete and proper execution of the Work described in the article BA06 Construction Time of the Invitation to Tender and within the specified time frame.
-

- .4 The Contractor shall at the outset of the work maintain his personnel staffing in sufficient number to execute work at a steady, continuous pace, whether performed by his own personnel or that of subcontractors or others, and ensure that work is completed within the prescribed time frame.
- .5 From time to time Departmental Representative may require the Contractor to interrupt work or postpone certain tasks in certain areas; such changes do not constitute grounds to claim additional amounts or time extensions.

### **1.7 Working hours**

- .1 All work may be performed 7/7 between 7 AM and 6 PM. Working hours would therefore be as follows:
  - .1 7 AM to 6 PM Sunday to Saturday.
- .2 No derogation from this timetable is permitted without a written authorisation by the Departmental Representative and in this instance any additional measure required to control noise, odours, safety, etc., shall be at Contractor's expense.
- .3 Submit work schedule to project manager.

### **1.8 Temporary installations and services**

- .1 Throughout project duration, the Contractor may use a room inside the Harrington Harbour Federal shed building for his office.
- .2 Throughout project duration, the Contractor may use the existing sanitary facilities in the Harrington Harbour Federal shed building. The Contractor shall maintain the upkeep of sanitary facilities including wash basins and faucets.

### **1.9 Cellular telephones**

- .1 No cellular telephone is operational in Harrington Harbour. The Contractor may use at own cost the Harrington Harbour federal wharf shed telephone.

### **1.10 Site installation**

- .1 Project materials and useful tools may be stored in containers on the end of the federal wharf.
- .2 Containers to be provided by the Contractor and maintained locked between work shifts

## **PART 2 - PRODUCTS**

### **2.1 Not used**

- .1 Not used.

## **PART 3 - EXECUTION**

### **3.1 Not used**

- .1 Not used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Definitions**

- .1 Activity: element of Work performed during course of Project. Activity normally has expected duration, expected cost and expected resource requirements. Activities can be subdivided into tasks.
- .2 Project Schedule: planned dates for performing activities and the planned dates for meeting milestones. Dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project schedule in executing and controlling activities and is used as basis for decision-making throughout project life cycle.
- .3 Bar Chart (GANTT): graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart and dates are shown across top. Activity durations are shown as date-placed horizontal bars.
- .4 Duration: number of work periods (not including holidays or other nonworking periods) required to complete activity or other project element. Usually expressed as workdays or workweeks.
- .5 Milestone: significant event in project, usually completion of major deliverable.
- .6 Project Planning, Monitoring and Control System: overall system operated by Contractor to enable monitoring of project work in relation to established milestones.
- .7 Master Plan: summary-level schedule that identifies major activities and key milestones.
- .8 Baseline: original approved plan (for project, work package, or activity), plus approved scope changes.
- .9 Construction work week: Monday to Friday, inclusive, providing a five (5) day work week and defining schedule calendar working days as part of Bar (GANTT) Chart submission.

### **1.2 Requirements**

- .1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.
- .2 Plan to complete Work in accordance with prescribed milestones and time frame.
- .3 Limit activity durations to maximum of approximately ten (10) working days, to allow for progress reporting.
- .4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

### **1.3 Submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit to Departmental Representative within ten (10) days of Award of Contract a Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.
- .3 Submit Project Schedule to Departmental Representative within ten (10) working days of receipt of acceptance of Master Plan.

### **1.4 Master plan**

- .1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).
  - .2 Departmental Representative will review and return to Contractor revised schedules within ten (10) working days.
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- .3 Revise schedule and in accordance with Departmental Representative's recommendations and resubmit within five (5) working days.
- .4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

### **1.5 Project schedule**

- .1 Develop detailed Project Schedule derived from Master Plan.
- .2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:
  - .1 Contract award,
  - .2 Mobilization and demobilization of Contractor,
  - .3 Shop drawings, samples,
  - .4 Obstruction of vehicle traffic,
  - .5 Delivery dates required when products provided by Department,
  - .6 Provisional acceptance of work.
  - .7 Correction of identified deficiencies,
  - .8 Final acceptance of the work.

### **1.6 Project schedule reporting**

- .1 Update Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress.
- .2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

## **PART 2 - PRODUCTS**

### **2.1 Not Used**

- .1 Not Used.

## **PART 3 - EXECUTION**

### **3.1 Not Used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Related requirements**

- .1 Section 01 45 00 - Quality control.

### **1.2 Administrative**

- .1 Submit to Departmental Representative submittals listed for review within ten (10) days after the date of award of the contract. Submit promptly and in orderly sequence to prevent delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
  - .1 Contractor shall produce and keep an up-to-date record of shop drawings to be provided at each job meeting.
- .2 Do not proceed with Work affected by submittal until review is complete.
- .3 Present shop drawings, product data, samples and mock-ups in SI Metric units.
- .4 Where items or information is not produced in SI Metric units, converted values are acceptable.
- .5 Review submittals prior to submission to Departmental Representative. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents.
  - .1 Submittals not stamped, signed, dated, and identified as to specific project and that were not reviewed by Contractor will be returned without being examined and considered rejected. Departmental Representative shall notify the Contractor in writing of deviations in shop drawings.
  - .2 Departmental Representative shall deduct directly from the Contractor's contract the Departmental Representative fees for any additional work needed to compensate for Contractor's omission to review the submittals.
- .6 Notify Departmental Representative, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.
- .7 Verify that field measurements and affected adjacent Work are co-ordinated.
- .8 Contractor's responsibility for errors and omissions in submission is not relieved by Departmental Representative's review of submittals.
- .9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Departmental Representative review.
- .10 Keep one reviewed copy of each submission on site.

### **1.3 Shop drawings and product data**

- .1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.
  - .2 Submit drawings stamped and signed by professional engineer registered or licensed in Québec and member in good standing of OIQ (Ordre des ingénieurs du Québec).
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- .3 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross-references to design drawings and specifications.
  - .4 Allow ten (10) days for Departmental Representative's review of each submission.
  - .5 Adjustments made on shop drawings by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
  - .6 Make changes in shop drawings as Departmental Representative may require, consistent with Contract Documents. When resubmitting, notify Departmental Representative in writing of revisions other than those requested.
  - .7 Accompany submissions with transmittal letter containing:
    - .1 Date,
    - .2 Project title and number,
    - .3 Contractor's name and address,
    - .4 Identification and quantity of each shop drawing, product data and sample,
    - .5 Other pertinent data.
  - .8 Submissions include:
    - .1 Date and revision dates,
    - .2 Project title and number,
    - .3 Name and address of:
      - .1 Subcontractor,
      - .2 Supplier,
      - .3 Manufacturer.
    - .4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.
    - .5 Details of appropriate portions of Work as applicable:
      - .1 Fabrication details and materials,
      - .2 Layout, showing dimensions, including identified field dimensions, and clearances,
      - .3 Setting or erection details,
      - .4 Capacities,
      - .5 Performance characteristics,
      - .6 Reference standards,
      - .7 Operating weight,
      - .8 Wiring diagrams,
      - .9 Single line and schematic diagrams,
      - .10 Relationship to adjacent work.
  - .9 After Departmental Representative's review, distribute copies.
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- .10 Submit one (1) electronic copy of shop drawings for each requirement requested in specification Sections and as Departmental Representative may reasonably request
- .11 Submit one (1) electronic copy of product data sheets or brochures for requirements requested in specification Sections and as requested by Departmental Representative where shop drawings will not be prepared due to standardized manufacture of product.
- .12 Submit one (1) electronic copy of test reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accordance with specified requirements.
  - .2 Testing must have been within three (3) years of contract award.
- .13 Submit one (1) electronic copy of certificates for requirements requested in specification Sections and as requested by Departmental Representative. Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.
  - .1 Certificates must be dated after award of contract, complete with project name.
- .14 Submit one (1) electronic copy of manufacturers instructions for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.
- .15 Submit one (1) electronic copy of Manufacturer's Field Reports for requirements requested in specification Sections and as requested by Departmental Representative.
  - .1 Documentation of the testing and verification actions taken by manufacturer's representative to confirm compliance with manufacturer's standards or instructions.
- .16 Submit one (1) electronic copy of Operation and Maintenance Data for requirements requested in specification Sections and as requested by Departmental Representative.
- .17 Delete information not applicable to project.
- .18 Supplement standard information to provide details applicable to project.
- .19 If upon review by Departmental Representative, no errors or omissions are discovered or if only minor corrections are made, electronic copy will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, shall be performed before fabrication and installation of Work may proceed.
- .20 The review of shop drawings by Departmental representative is for sole purpose of ascertaining conformance with general concept.
  - .1 This review shall not mean that Departmental Representative approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.
  - .2 Without limiting the generality of the foregoing, the Contractor shall be responsible for dimensions to be confirmed and correlated at job site, for the information pertaining to fabrication processes or to construction methods and installation techniques and the co-ordination and performance of all sub-trades.

#### **1.4 Product samples**

- .1 Submit for review one (1) sample as requested in respective specification Sections. Label samples with origin and intended use.
- .2 Deliver samples prepaid to Departmental Representative's business address.
- .3 Notify Departmental Representative in writing, at time of submission, of deviations in samples from requirements of Contract Documents.
- .4 Where colour, pattern or texture is criterion, submit full range of samples.
- .5 Adjustments made on samples by Departmental Representative are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Departmental Representative prior to proceeding with Work.
- .6 Make changes in samples which Departmental Representative may require, consistent with Contract Documents. Reviewed and accepted samples will become standard of workmanship and material against which installed Work will be verified.

#### **1.5 Mock-ups**

- .1 Erect mock-ups in accordance with 01 45 00 - Quality Control.

#### **1.6 Certificates and transcripts**

- .1 Immediately after award of Contract, submit documents required by CSST.

#### **1.7 Distribution of reviewed submittals**

- .1 Distribute copies of shop drawings and products data stamped by Departmental Representative as follows:
  - .1 one (1) copy to Owner,
  - .2 one (1) copy to Project Record kept on site,
  - .3 one (1) copy to Contractor,
  - .4 one (1) copy to Subcontractor,
  - .5 one (1) copy to Supplier,
  - .6 one (1) copy to Manufacturer.
- .2 Distribute samples as indicated.

### **PART 2 - PRODUCTS**

#### **2.1 Not Used**

- .1 Not Used.

### **PART 3 - EXECUTION**

#### **3.1 Not Used**

- .1 Not Used.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Section includes**

- .1 This section governs Contractor's management of work site activities as required to ensure that the health and safety of the public and work site personnel, including environmental protection, are at all times given precedence over project cost or schedule considerations.

### **1.2 References**

- .1 Canada Labour Code - Part II, Canadian Occupational Safety and Health Regulations.
- .2 Canadian Standards Association (CSA).
- .3 Workplace Hazardous Materials Information System (WHMIS)/Health Canada.
  - .1 Material safety data sheets (MSDS).
- .4 Act Respecting Occupational Health and Safety, R.S.Q. Chapter S-2.1.
- .5 Construction Safety Code, S-2.1, r.4.

### **1.3 Submittals**

- .1 Submit the documents required according to section 01 33 00 - Submittal Procedures.
  - .2 Submit to Departmental Representative the site-specific safety program, as outlined in article 1.8, at least ten (10) days prior to start of work. The Contractor must review his program during the course of the project if any change occurs in work as planned. Departmental Representative may, after receiving the program or at any time during the project, ask the Contractor to update or modify the program in order to better reflect the reality of the construction site. Contractor to make the required changes before work begins.
  - .3 Submit to Departmental Representative the site inspection sheet, duly completed, to the frequency indicated in article 1.13.1.
  - .4 Submit to Departmental Representative within 24 hours one (1) copy of any inspection report, correction notice or recommendation issued by federal or provincial inspectors.
  - .5 Submit to Departmental Representative within 24 hours an investigation report for any accident involving injury and any incident exposing a potential hazard.
  - .6 Submit to Departmental Representative all material safety data sheets for controlled products to be used at the site at least three (3) days before they are used on the worksite.
  - .7 Submit to Departmental Representative copies of the training certificates required toward the application of the safety program, including:
    - .1 General construction site safety and health courses.
    - .2 Safety officer certificate.
    - .3 First aid in the workplace and cardiopulmonary resuscitation.
    - .4 Work likely to release asbestos dust.
    - .5 Work in confined space.
    - .6 Lockout procedure.
    - .7 Wearing and fitting of individual protective gear.
-

- .8 Safe driving of lift trucks
- .9 Elevating work platforms.
- .10 Any other training called for by regulation or the safety program.
- .8 Medical examinations: Where legislation, regulations, directions, specifications or a safety program require medical examinations, the Contractor shall:
  - .1 Prior to mobilization, submit to Departmental Representative certificates of medical examination for all concerned supervisory staff and employees concerned with the first paragraph of this article and who will be on duty when the site opens.
  - .2 Thereafter, submit without delay certificates of medical examination for any newcomers to the worksite and concerned with the first paragraph of this article.
- .9 Emergency plan: The emergency plan, as defined in article 1.8.3, shall be submitted to Departmental Representative along with the site-specific safety program.
- .10 Notice of site opening: Notice of site opening shall be submitted to the Commission de la santé et de la sécurité du travail (CSST) with copy to the Departmental Representative before work begins. A copy of such notice shall be posted in full view at the site. At demobilization, a notice of site closing shall be submitted to CSST, with copy to Departmental Representative.
- .11 Engineering plans and certificates of compliance: the Contractor shall provide the CSST and the Departmental Representative with a copy of all plans and certificates of compliance signed and sealed by an engineer as required in the Construction Safety Code (S-2.1, r. 6) or in any other legislation or regulation or in any other clause in the specifications or in this contract. A copy of these documents must be on hand at the site at all times.
- .12 Certificate of compliance delivered by the CSST: The certificate of compliance is a document issued by the CSST to certify that the Contractor is in good standing with the CSST, i.e., that he has paid out all sums payable concerning any given contract. This document must be provided to the Departmental Representative at work completion.

#### **1.4 Risk assessment**

- .1 The Contractor must identify all hazards inherent to each task carried out at the site.
- .2 The Contractor shall plan and organize the work so as to foster hazard abatement at the source, or mutual protection, so that reliance on individual protective gear can be kept to a minimum. Where individual protection against falls is required, workers shall use a safety harness to CAN/CSA- Z-259.10-M90 requirements. Safety belts shall not be used as protection against falls.
- .3 Equipment, tools and protective gear which cannot be installed, fitted or used without compromising the health or safety of workers or the public shall be deemed inadequate for the work at hand.
- .4 All mechanical equipment shall be inspected before delivery to the site. Before using any mechanical equipment, submit to Departmental Representative a certificate of compliance signed by a qualified mechanic. Whenever the Departmental Representative suspects a defect or risk, the Departmental Representative may order the immediate shut-down of equipment and require a new inspection by a specialist of his own choosing.
- .5 Ensure that the required inspections of lifting equipment for materials or persons are carried out as required in applicable standards. Upon request by Departmental Representative, submit a copy of the certificates of inspection.

#### **1.5 Meetings**

- .1 A Contractor's representative who has decisional ability must attend all meetings at which site safety and health issues are to be discussed.

- .2 The Contractor shall set up a safety committee, and convene meetings in accordance with the Construction Safety Code.

### **1.6 Regulatory requirements**

- .1 Comply with all legislation, regulations and standards applicable to the Work.
- .2 Comply with specified standards and regulations to ensure safe operations at sites contaminated with hazardous or toxic substances.
- .3 Regardless of the publication date of standards indicated in the construction safety code, always use the version that is applicable.

### **1.7 Site-specific implementation conditions**

- .1 At the site, the Contactor must take into account of the following conditions and refer to relevant appendices:
  - .1 Scaffolding
  - .2 Bird droppings
  - .3 Lifting of materials
  - .4 Drowning
  - .5 Roof
  - .6 Work at heights.

### **1.8 Management of safety and health**

- .1 Acknowledge and assume all the charges and obligations which customarily devolve upon Contractor under the terms of the Act Respecting Occupational Health and Safety (R.S.Q., chapter S-2.1) and the Construction Safety Code (S-2.1, r.4).
  - .2 Develop a site-specific safety program based on hazard identification and apply it from the start of project until close-out (demobilization) is completed. The safety program must take into account all the information set forth in article 1.7. Distribute to all parties concerned in accordance with the provisions of article 1.3. At minimum, the site-specific safety program shall include:
    - .1 Company safety and health policy;
    - .2 A description of the work, total costs, schedule and expected workforce curve;
    - .3 Flow chart of safety and health responsibilities;
    - .4 Physical and material layout of the site;
    - .5 First-aid and first-line treatment standards;
    - .6 Identification of site-specific hazards;
    - .7 Risks identified to the tasks being carried out, including preventive measures and the procedures for applying the latter;
    - .8 Training requirements;
    - .9 Procedures in case of accident/injury;
    - .10 Written commitment to comply with the prevention program, signed by all parties;
    - .11 Site inspection schedule based on the preventive measures.
-

- .3 The Contractor shall draw up an effective emergency plan based on the characteristics and constraints of the site and its surroundings. Submit the emergency plan to all parties concerned, as required in article 1.3. Emergency plan to include:
  - .1 Evacuation procedure;
  - .2 Identification of respondents (police, firefighters, ambulance services, etc.);
  - .3 Identification of persons in charge at the site;
  - .4 Identification of first-aid attendants;
  - .5 Training required for those responsible for applying the plan;
  - .6 Any other information needed, in the light of the site characteristics.

### **1.9 Responsibilities**

- .1 No matter the size of the construction site or the number of workers on the site, designate one (1) competent person to supervise and take responsibility for health and safety. Take all necessary measures to ensure the health and safety of persons and property at or in the immediate vicinity of the site and likely to be affected by the work.
- .2 Take all necessary measures to ensure application of and compliance with the safety and health requirements in the contract documents, in federal and provincial regulations, in applicable standards as well as in the site-specific safety program, and comply without delay with any order or correction notice issued by CSST (Commission de la santé et de la sécurité du travail).
- .3 Take all necessary measures to keep the site clean and tidy throughout the course of the work.

### **1.10 Communication and posting**

- .1 Make all necessary arrangements to ensure effective communication of safety and health information at the site. As they arrive on site, all workers must be informed of the site-specific safety program and of their rights and obligations. The Contractor must insist on workers' right to refuse to perform work which they feel may threaten their own health, safety or physical integrity or that of other persons on site. The Contractor shall keep and update a written record of all information distributed and the signature of all workers who received the information.
- .2 The following information and documents must be posted in a location readily accessible to all workers:
  - .1 Notice of site opening;
  - .2 Identification of Contractor;
  - .3 Company OHS policy;
  - .4 Site-specific safety program;
  - .5 Emergency plan;
  - .6 Material safety data sheets (MSDS) for all hazardous material used on site;
  - .7 Minutes of site committee meetings;
  - .8 Names of site committee representatives;
  - .9 Names of first-aid attendants;
  - .10 Action reports and correction notices issued by CSST.

### **1.11 Unforeseen circumstances**

- .1 Whenever a source of danger, not defined in the specifications or unidentifiable during the preliminary site inspection, arises as a result of the work or in the course of activities, the Contractor shall interrupt work immediately and take appropriate temporary measures to protect the workers and the public and notify the Departmental Representative, both verbally and in writing. The Contractor shall then modify or update the site-specific safety program in order to resume work in safe conditions.

### **1.12 Workplace inspection and correction of hazardous situations**

- .1 Proceed to workplace inspection and fill out the site inspection checklist at least once a day.
- .2 Immediately take all necessary measures to correct any lapses from legislative or regulatory requirements and any hazards identified by a government inspector, by the Departmental Representative, by the construction safety and health coordinator or during routine inspections.
- .3 Submit to Departmental Representative written confirmation of all measures taken to correct lapses and hazardous situations.
- .4 Work interruption: Give the safety officer or, where there is no safety officer, the person assigned to safety and health responsibilities, full authority to order interruption/resuming of work when deemed necessary or desirable in the interest of safety and health. This person should always act so that the safety and health of the public and site workers and environmental protection take precedence over cost and scheduling considerations.
- .5 Without limiting the scope of articles 1.8 and 1.9, the Departmental Representative may order cessation of work if, in the Departmental Representative's view, there exist hazards or threats to the safety or health of site workers or the public, or to the environment.

### **1.13 Stud guns or other devices with cartridge**

- .1 The use of stud guns or other propelled actuated devices must be authorized by Departmental Representative.
- .2 Any person using stud gun must hold a training certificate and fill all requirements of section 7 of the Construction Safety Code (S-2.1, r.6).
- .3 Any other cartridge operated device must be used accordingly to the manufacturer's instructions and to applicable standards and regulations.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Definitions**

- .1 Environmental Pollution and Damage: presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humans; or degrade environment aesthetically, culturally and/or historically.
- .2 Environmental Protection: prevention/control of pollution and habitat or environment disruption during construction. Prevention of pollution and damages to environment covers the protection of soils, water, air, biological and cultural resources; it also covers management of visual design, noise, solid, chemical, gaseous and liquid waste, radiant energy, radioactive material and other pollutant.

### **1.2 Fires**

- .1 Fires and burning of rubbish on site is prohibited.

### **1.3 Waste disposal**

- .1 Do not bury rubbish and waste materials on site.
- .2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

### **1.4 Drainage**

- .1 Develop and submit erosion and Sediment Control Plan identifying type and location of erosion and sediment controls provided. Plan to include monitoring and reporting requirements to assure that control measures are in compliance with erosion and Sediment Control Plan, Federal, Provincial, and Municipal laws and regulations.
- .2 Storm Water Pollution Prevention Plan may be substituted for erosion and Sediment Control Plan.
- .3 Provide temporary drainage and pumping required to keep excavations and site free of standing water.
- .4 Ensure pumped water into waterways, sewer or drainage systems is free of suspended matter.
- .5 Control disposal or runoff of water containing suspended matter or other harmful substances in accordance with local authority requirements.

### **1.5 Site clearing and plant protection**

- .1 Protect trees and plants on site and adjacent properties where indicated. The Contractor shall replace, at own expense, damaged plants during work with plants identical and of same size as the damaged ones.
  - .2 Protect trees and shrubs adjacent to construction work, storage areas and trucking lanes with burlap. Encase trees and shrubs with protective wood framework from grade level to height of 2 m minimum.
  - .3 Protect roots of designated trees to drip line during excavation and site grading to prevent disturbance or damage. Avoid unnecessary traffic, dumping and storage of materials over root zones of protected trees.
  - .4 Minimize stripping of topsoil and vegetation.
-

## **1.6 Pollution control**

- .1 Maintain temporary erosion and pollution control features installed under this Contract.
- .2 Control emissions from equipment and plant in accordance with local authorities' emission requirements.
- .3 Prevent sandblasting and other extraneous materials from contaminating air and waterways beyond application area by providing temporary enclosures.
- .4 Cover and wet down dry materials and rubbish to prevent blowing dust and debris.
- .5 Provide dust control for temporary roads used by Contractor and subcontractors.

## **1.7 Non-conformity notice**

- .1 Departmental Representative will notify Contractor in writing of observed noncompliance with Federal, Provincial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan.
- .2 After receipt of such notice, inform Departmental Representative of proposed corrective action and take such action as approved by Departmental Representative.
- .3 Departmental Representative will issue stop order of work until satisfactory corrective action has been taken.
- .4 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

## **1.8 Historical/archaeological control**

- .1 Provide historical, archaeological, cultural resources plan that defines procedures for identifying and protecting historical, archaeological, cultural resources known to be on project site; and that identifies procedures to be followed if historical, archaeological, cultural resources not previously known to be onsite or in area are discovered during construction.
- .2 Plan to include methods designed to assure protection of known or discovered resources and identify lines of communication between Contractor personnel and Departmental Representative.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 General**

- .1 Contractor shall manage work site activities as required to ensure that the health and safety of the public and work site personnel, including environmental protection, are at all times given precedence over project cost or schedule considerations.
- .2 Contractor shall have at all time a person in authority from his company on the premises when Work is performed. This person must be able to decide of action to be undertaken.
- .3 Besides the First-Aid Minimum Standards Regulation, Contractor shall make sure that a first-aid worker is on site at all time when workers are on work site, including during overtime or evenings and night watches. First-aid worker must be in close proximity to workers and accessible to them.
- .4 Contractor shall take all necessary measures to keep site clean and tidy throughout construction.

### **1.2 References and standard codes**

- .1 Work shall meet applicable requirements of the latest edition of the National Building Code of Canada (NBC 2010), including any amendments published until tender closing date, and of other relevant provincial or local standards and codes. In case of conflict or discrepancy among applicable documents, the more stringent requirements shall apply.
- .2 Work to meet or exceed requirements of:
  - .1 Contract documents.
  - .2 Specified standards, codes and referenced documents.

### **1.3 Discovery of hazardous substances**

- .1 Asbestos: Health risks can result from demolition of work made of or covered with material composed of sprayed-on or trowelled-on asbestos. Should such material be uncovered during demolition work, stop work at once and notify Departmental Representative.
- .2 PCB (polychlorinatedbiphenyls): If PCBs are discovered during demolition work, stop work at once and notify Departmental Representative.
- .3 Mold: If mold is uncovered during demolition work, stop work at once and notify Departmental Representative.

### **1.4 Smoke-free environment**

- .1 Comply with smoking restrictions and municipal by-laws.

## **PART 2 - PRODUCTS**

### **2.1 Not Used**

- .1 Not Used.
-

**PART 3 - EXECUTION**

**3.1 Not Used**

.1 Not Used.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Definitions**

- .1 Allow Departmental Representative access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress. Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Departmental Representative instructions, or law of Place of Work.
- .2 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.
- .3 Departmental Representative will order part of Work to be examined if Work is suspected to be non compliant with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, Contractor shall correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, the Department shall pay cost of examination and replacement.

### **1.2 Independent testing and inspection agencies**

- .1 Independent inspection and testing agencies will be hired by Departmental Representative for purpose of inspecting and/or testing portions of Work. Cost of such services will be borne by the Department.
- .2 Provide equipment required for performance of inspection and testing by appointed agencies.
- .3 Controls by inspection/testing agencies does not relieve Contractor of his responsibility to perform Work in accordance with Contract Documents.
- .4 If defects are identified during inspection and/or testing, appointed agency will require additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as directed by Departmental Representative at no cost to Department. Pay costs for re-testing and re-inspection.

### **1.3 Access to work site**

- .1 Allow inspection/testing agencies access to Work, and to off site manufacturing and fabrication plants.
- .2 Collaborate and provide reasonable facilities for such access.

### **1.4 Procedures**

- .1 Notify appropriate agency and Departmental Representative in advance of required testing in order that attendance arrangements can be made.
- .2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.
- .3 Provide labour and facilities to collect and handle samples and materials on site. Provide sufficient space to store and cure test samples.

### **1.5 Rejected work**

- .1 Remove defective Work, whether resulting of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Departmental Representative as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.
-

- .2 Make good other Contractor's work damaged by such removals or replacements promptly.

### **1.6 Reports**

- .1 Submit four (4) copies of inspection and test reports to Departmental Representative.
- .2 Provide copies to subcontractor of work being inspected or tested.

### **1.7 Tests and mix designs**

- .1 Furnish test results and mix designs as requested.

### **1.8 Mock-ups**

- .1 Prepare mock-ups of Work as specifically requested in specifications. This requirement applies to all sections where mock-ups are called for.
- .2 Construct in locations acceptable to Departmental Representative as specified in the relevant Section.
- .3 Prepare mock-ups for Departmental Representative review with reasonable promptness and in orderly sequence, to not cause delays in Work.
- .4 Failure to prepare mock-ups in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.
- .5 If requested, Departmental Representative will assist in scheduling mock-up preparation.
- .6 Specification sections to identify whether mock-up may remain as part of Work or if it is to be removed and when.

### **1.9 Mill tests**

- .1 Submit mill test certificates as required in relevant specification Sections.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Installation and removal**

- .1 Provide temporary utilities controls in order to execute work expeditiously.
- .2 Remove from site all such work after use.

### **1.2 Dewatering**

- .1 Provide temporary drainage and pumping facilities to keep excavations and site free from standing water.

### **1.3 Water supply**

- .1 Contractor to provide continuous supply of potable water as required to perform the work.

### **1.4 Temporary heating and ventilation**

- .1 Provide temporary heating equipment required during construction period, including attendance, maintenance and fuel.
  - .2 Construction heaters used inside building must be vented to outside or be flameless type. Solid fuel salamanders are prohibited.
  - .3 Provide temporary heat and ventilation in enclosed areas as required to:
    - .1 Facilitate progress of Work,
    - .2 Protect Work and products against dampness and cold,
    - .3 Prevent moisture condensation on surfaces,
    - .4 Provide ambient temperatures and humidity levels for storage, installation and curing of materials,
    - .5 Provide adequate ventilation to meet health regulations for safe working environment.
  - .4 Maintain temperatures of minimum ten (10) degrees C in areas where construction is in progress, unless stated differently in other sections of specification for storage or execution of work.
  - .5 Ventilation
    - .1 Provide local exhaust ventilation to prevent harmful accumulation of hazardous substances into atmosphere of occupied areas.
    - .2 Dispose of exhaust fumes in area and manner that will not result in harmful exposure of occupants.
    - .3 Ventilate storage spaces containing hazardous or volatile materials.
    - .4 Ventilate temporary sanitary facilities.
    - .5 Pay costs for maintaining temporary heat, when using permanent heating system.
    - .6 Maintain strict supervision of operation of temporary heating and ventilation equipment to:
      - .1 Comply with applicable codes and standards,
      - .2 Enforce safe practices,
      - .3 Prevent abuse of services and waste,
-

- .4 Prevent damage to finishes,
- .5 Vent direct-fired combustion units to outside.
- .7 Be responsible for damage to Work due to failure in providing adequate heat and protection during construction.

### **1.5 Temporary power and light**

- .1 The Contractor shall use the existing electric system of building affected by work.
- .2 Temporary power for electric cranes and other equipment is responsibility of Contractor.
- .3 Provide and maintain temporary lighting throughout project. Ensure level of illumination on all floors and stairs is not less than 162 lx.
- .4 Provide and maintain temporary lighting of walkways and vehicle crossings throughout work. Refer to authorities having jurisdiction (AHJ) for required lightning level.
- .5 Electrical power and lighting systems installed under this Contract may be used for construction purposes only with prior approval of Departmental Representative provided that guarantees are not affected. Make good damage to electrical systems caused by use under this Contract.

### **1.6 Fire protection**

- .1 Provide and maintain temporary fire protection equipment during performance of Work as required by reliable insurance companies and governing codes and regulations.
- .2 Burning rubbish and construction waste materials is not permitted on site.

## **PART 2 - PART 2 - PRODUCTS**

### **2.1 Not Used**

- .1 Not Used.

## **PART 3 - PART 3 - EXECUTION**

### **3.1 Not Used**

- .1 Not Used.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 References**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 1.189-00, Exterior Alkyd Primer for Wood.
  - .2 CGSB 1.59-97, Alkyd Exterior Gloss Enamel.
- .2 Canadian Standards Association (CSA International)
  - .1 CSA-A23.1/A23.2-04, Concrete Materials and Methods of Concrete Construction/Methods of Test and Standard Practices for Concrete.
  - .2 CSA-0121-FM1978(C2003), Douglas Fir Plywood.
  - .3 CAN/CSA-S269.2-FM1987(C2003), Scaffolding.
  - .4 CAN/CSA-Z321-F96(C2001), Signs and Symbols for the Occupational Environment.

### **1.2 Submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

### **1.3 Hoarding**

- .1 Prepare site plan indicating proposed location and dimensions of area to be fenced, number of trailers to be used, avenues of ingress/egress to fenced area and details of fence installation.
- .2 Identify areas which have to be gravelled to prevent tracking of mud.
- .3 Indicate use of supplemental or other staging area.
- .4 Provide, install or develop required construction facilities in order to execute work expeditiously.
- .5 Dismantle and remove from site all such work after use.

### **1.4 Scaffolding**

- .1 Scaffolding to comply with CAN/CSA-S269.2.
- .2 Provide and maintain scaffolding, access ramps, ladders, swing staging, platforms, temporary stairs and shoring.

### **1.5 Hoisting**

- .1 Provide, operate and maintain hoists required for moving workers, materials and equipment. Make financial arrangements with Subcontractors for their use of hoists.
- .2 Hoists to be operated by qualified operator.

### **1.6 Storage of equipment, tools and materials**

- .1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.
  - .2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.
-

**1.7 Job site signage**

- .1 Apart from warning signs, no other sign or bill can be posted on site.

**1.8 Site office**

- .1 Provide site office heated to 22 degrees C, lighted 750 lux and ventilated, of sufficient size to accommodate site meetings and furnished with drawing laydown table.
- .2 Provide marked and fully stocked first-aid case in a readily available location.
- .3 Where necessary, subcontractors to provide their own offices. Direct location of these offices.
- .4 Maintain at all time in clean condition to the satisfaction of Departmental Representative.

**1.9 Sanitary facilities**

- .1 Departmental Representative will provide sanitary facilities for Contractor and his personnel. The Contractor shall ensure proper upkeep.

**1.10 Waste containers**

- .1 Containers shall be located within fenced area.
- .2 Contractor to pay transportation and disposal.

**PART 2 - PRODUCTS**

**2.1 Not Used**

- .1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not Used**

- .1 Not Used.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Installation and removal**

- .1 Provide, install or develop temporary access and means of protection in order to execute Work expeditiously.
- .2 Remove from site all such work and material after use.

### **1.2 Hoarding**

- .1 In order to fence off the worksite, erect 2,4 m high new temporary fences in metal. The enclosure must be sturdy and resistant to vandalism and trespassing.
- .2 Departmental Representative reserves the right to modify the enclosure perimeter during construction at Contractor's expense.
- .3 Provide barriers around protected trees and plants. Protect from damage by equipment and construction procedures or methods.

### **1.3 Guardrails and barricades**

- .1 Provide secure, rigid guardrails and barricades around deep excavations, open shafts, open stair wells, and open edges of floors and roofs.
- .2 Provide as required by governing authorities.

### **1.4 Weather shelters and enclosures**

- .1 Provide enclosures outside building where temporary heating is needed.
- .2 Design safe outside enclosures, anti-intruder, to withstand wind pressure and snow loading.

### **1.5 Access**

- .1 Provide and maintain access roads, sidewalk crossings, ramps and construction runways as may be required for access to Work.
- .2 Clean access roads to enclosed site where used by site equipment.

### **1.6 Fire routes**

- .1 Maintain access to property including overhead clearances for use by emergency response vehicles.

### **1.7 Protection and maintenance of traffic**

- .1 Shed must stay open to transport vehicles and pedestrian traffic at all time during construction with no exception. Provide access and temporary lanes designed to maintain traffic. Maintain and protect traffic on roads and lanes throughout construction.
  - .2 Provide protection and detour of traffic measures, signal flag operators, barricades, lights around and in front equipment and work area, maintenance and establishment of appropriate warning, danger, and direction signs in accordance with municipal regulations.
  - .3 Protect public from damage to persons or property.
  - .4 Minimize the impact of entry and exit of Contractor's rolling stock used for transportation of equipment and products on traffic.
-

- .5 Ensure that existing roads and authorized load limits are appropriate. Contractor must be repair roads damaged by construction work.
- .6 Design access and job-site roads with appropriate slope and width. Avoid sharp and blind curves or any dangerous intersection. Location, slope, width, layout of access and job-site roads need to be approved by Departmental Representative.
- .7 Provide lightning systems, warning signs, barricades, and proper road-marking necessary to road traffic. Lightning systems must provide complete visibility on all width of job-site roads and work areas during evening and night watches.
- .8 Take necessary measurements to reduce dust and ensure that activities go safely at all time.
- .9 Remove temporary access and job-site roads from site after end of work.

**1.8 Protection for off-site and public property**

- .1 Protect surrounding private and public property from damage during performance of work.
- .2 Be responsible for damage incurred.

**1.9 Protection of building finishes**

- .1 Provide protection for finished and partially finished building finishes and equipment during performance of Work.
- .2 Provide necessary screens, covers, and hoardings.
- .3 Be responsible for damage incurred due to lack of or improper protection.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 References**

- .1 Within text of each specifications section, reference may be made to reference standards. Conform to these reference standards as specifically requested in specification sections.
- .2 If there is question as to whether products or systems are in conformance with applicable standards, Departmental Representative reserves the right to have such products or systems tested to prove or disprove conformance.
- .3 Cost for such testing will be borne by Department in event of conformance with Contract Documents or by Contractor in event of non-compliance.

### **1.2 Quality**

- .1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.
- .2 Procurement policy is to acquire, in cost effective manner, items containing highest percentage of recycled and recovered materials practicable, consistent with maintaining satisfactory levels of competition. Make reasonable efforts to use recycled and recovered materials and in otherwise utilizing recycled and recovered materials in execution of work.
- .3 Defective products, whenever identified prior to completion of Work, will be rejected regardless of previous inspections. Inspection does not relieve responsibility of Contractor, but is precaution against oversight or error. Remove and replace defective products at own cost and be responsible for delays and expenses caused by rejection.
- .4 Should disputes arise as to quality or fitness of products, decision rests strictly with Departmental Representative based on requirements of Contract Documents.
- .5 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.
- .6 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

### **1.3 Availability**

- .1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. Where delays in supply of products are foreseeable, notify Departmental Representative of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

### **1.4 Storage, handling and protection**

- .1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions where applicable.
  - .2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.
  - .3 Store products subject to damage from weather in weatherproof enclosures.
  - .4 Store cementitious products clear of earth or concrete floors, and away from walls.
-

- .5 Keep sand, when used for grout or mortar materials, clean and dry. Store sand on wooden platforms and cover with waterproof tarpaulins during inclement weather.
- .6 Store sheet materials and lumber on flat, solid supports and keep clear of ground. Slope to shed moisture.
- .7 Store and mix paints in heated and ventilated room. Remove oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.
- .8 Remove and replace damaged products at no additional cost and to satisfaction of Departmental Representative.
- .9 Touch-up damaged factory finished surfaces to Departmental Representative's satisfaction. Use touch-up materials to match original. Do not paint over nameplates. Do not apply finishing or touch-up products on product nameplates.

### **1.5 Transportation**

- .1 Pay costs of transportation of products required toward performance of Work.
- .2 Transportation costs of products supplied by Department will be paid for by Department. Unload, handle and store such products.

### **1.6 Manufacturers' instructions**

- .1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or packaging provided with products. Obtain written instructions directly from manufacturers.
- .2 Notify Departmental Representative in writing of conflicts between specifications and manufacturer's instructions, so that Departmental Representative may establish course of action.
- .3 Improper installation or erection of products, due to failure to comply with these requirements, authorizes Departmental Representative to require removal and re-installation at no increase in Contract Price or extension of Contract Time.

### **1.7 Quality of Work**

- .1 Ensure Quality of Work is of highest standard, performed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Departmental Representative if required Work is such as to make it impractical to deliver required results.
- .2 Do not hire anyone unskilled in their required duties. Departmental Representative reserves right to require dismissal from site of workers deemed incompetent or careless.
- .3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Departmental Representative whose decision is final.

### **1.8 Co-ordination**

- .1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision of their work.
- .2 Contractor shall be responsible for co-ordination of work and placement of throughs, sleeves and accessories.

### **1.9 Concealed elements**

- .1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.
-

- .2 Before installation inform Departmental Representative if there is interference. Install as directed by Departmental Representative.

#### **1.10 Remedial Work**

- .1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.
- .2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

#### **1.11 Location of fixtures**

- .1 Consider that location of fixtures, outlets, and mechanical and electrical items indicated are approximate.
- .2 Inform Departmental Representative of conflicting installation. Install as directed.

#### **1.12 Fastenings - General**

- .1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.
- .2 Prevent electrolytic action between dissimilar metals and materials.
- .3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other materials are specified in relevant Section.
- .4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wooden dowels or in any other organic material are not acceptable.
- .5 Keep exposed fastenings to a minimum. Space evenly and install neatly.
- .6 Fastenings likely to cause spalling or cracking of material into which anchorage is made are not acceptable.

#### **1.13 Fastenings - Equipment**

- .1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.
- .2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel for exterior areas.
- .3 Bolts may not project more than one diameter size beyond nuts.
- .4 Use plain type washers on equipment, and sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

#### **1.14 Protection of Work in progress**

- .1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated in writing by Departmental Representative.

#### **1.15 Existing utilities**

- .1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work and building occupants.
- .2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.



## **PART 1 - GENERAL**

### **1.1 Submittals**

- .1 Submit required submittals in accordance with section 01 33 00 - Submittal procedures.
- .2 Obtain Departmental Representative's written authorization prior to cutting and refitting work that could have repercussions on:
  - .1 historical or heritage integrity of any item of work,
  - .2 structural integrity of any item of work,
  - .3 integrity of items exposed to weather or of waterproofed items,
  - .4 efficiency, maintenance or safety of functional items,
  - .5 final finish of noticeable items,
  - .6 work of Department or other Contractor.
- .3 Request to specify or include:
  - .1 project name,
  - .2 location and description of affected items. Description of need to proceed with cutting and refitting work,
  - .3 description of suggested work and products to be used,
  - .4 alternatives to cutting and refitting work,
  - .5 repercussions of cutting and refitting work on those carried out by the Department or other Contractor,
  - .6 other Contractor's written permission,
  - .7 date and hour of work execution.

### **1.2 PRODUCTS**

- .1 Use materials identical to in-place materials.
- .2 Any modification to products must be subject to Request for Substitution.
  - .1 Such request must be submitted only at moment of call for tenders.

### **1.3 Preparation**

- .1 Carry out an inspection the worksite and acknowledge existing conditions; identify the elements or items likely to be damaged or displaced during cutting and refitting work.
  - .2 After uncovering building elements or items, proceed to their inspection and record any condition likely to have a bearing on the performance of the work.
  - .3 From the moment the Contractor undertakes the work, it is implied that existing conditions have been acknowledged and accepted.
  - .4 Supply and install bracing to ensure structural integrity of adjacent elements. Provide means and methods that protect other structural elements against any damage.
-

- .5 Provide protection for surfaces that may be exposed to weather conditions following the uncovering of building sections. Maintain excavations free of standing water.

#### **1.4 Execution of work**

- .1 Proceed with cutting, adjusting and refitting work, including digging and filling up as necessary to perform the work.
- .2 Neatly adjust adjoining elements and ensure that they become well integrated with the rest of the structure or building.
- .3 Uncover building sections to allow for the execution of the work which for any reason should have been carried out at another time.
- .4 Remove or replace defective elements or non-compliant items.
- .5 Make openings, thru-holes, in non-bearing elements for electrical and mechanical installations.
- .6 Obtain Departmental Representative's written authorization prior to cutting or making a hole in bearing elements or inserting a sleeve.
- .7 Use methods that will not damage other elements or items in the structure and that will yield surfaces easy to patch and finish.
- .8 Hire skilled workers to perform cutting and refitting of waterproof and weather-exposed items and of exposed surfaces.
- .9 Drill holes with clean, straight, and smooth edges. Use methods to cut finished existing surfaces such as concrete, masonry, wood and metals that will ensure straight lines at intersection between elements. Cut rigid materials with masonry saw or fine boring tool. Do not use pneumatic or hammer tools on masonry structures without prior authorization.
- .10 Restore structure or building with new products, in accordance with requirements of contract documents.
- .11 Adjust work tightly around piping, sleeves, air ducts and electrical conduits as well as around other throughs.
- .12 Finish the surfaces and ensure perfect match with adjacent siding or finishes. Where continuous surfaces are concerned, perform finishing up to the next intersection between the elements. In the case of an assembly of elements, finish the entire surface area. Unless otherwise indicated, conceal piping, air ducts and electrical cables in the walls, ceilings and floors of rooms and finished areas.

#### **1.5 Removal of existing elements**

- .1 Perform the following as needed to allow construction or installation of new work:
  - .1 repair or removal of hazardous, unhygienic or infected items,
  - .2 removal of abandoned items or that no longer serve a purpose,
  - .3 removal of items like furniture or equipment, debris like rotten wood, useless rusted metals, damaged concrete, stone waste that have been identified non recoverable by Department or Departmental Representative,
  - .4 removal of sections of existing finishes to allow joining or assembly with new work.

#### **1.6 Recycling of existing products**

- .1 Contractor must carefully remove, clean, protect and store at designated location by Departmental Representative, demolition products that must be recycled for reuse as required in various specification sections.

- .2 Keep products to be recycled in sufficient quantity to repair damaged existing work, especially where such products are no longer available on the market.
- .3 Use of recycled products is restrictive. They must be used only for purposes of repair or modifications to existing work to ensure continuity in colour and quality.
- .4 Products recovered for reuse must be carefully selected according to quality, age, finish and match adjoining work.
- .5 Product recovery method is under Contractor's exclusive responsibility. Demolition work must be adapted to the products to be recycled.
- .6 In addition to prescriptions in specification sections, Departmental Representative may require the use of recycled products if:
  - .7 during construction it appears that product identical to existing is no longer available,
  - .8 colour, finish or size of new product is different from existing product.
- .9 Take special care in removing and storing recovered products to be reused and protect until ready to incorporate in Work.
- .10 Clean recycled products of all foreign materials such as mortar, plaster, adhesive, nails, earth, paint and carefully store them in location indicated by Departmental Representative. Do not incorporate or use recycled products without their prior inspection; obtain Departmental Representative approval immediately before reinstallation.

### **1.7 Repair and overhaul**

- .1 Drill holes, adjust and seal all work to exact fit so that work will hook up or join with any other work.
- .2 Patch, repair, extend and overhaul any existing items displaying flaws or imperfections, or that are unfastened, dislocated, weakened or discoloured.
- .3 Where new work affects existing installation, carry out any necessary drilling, sealing or overhaul work to restore existing work to initial condition.
- .4 Make all required holes in existing walls, floors and ceilings to allow passage of various electro-mechanical services, systems.
- .5 Make good all walls, floors and ceilings, and all exterior and interior surfaces affected by work to yield finished surfaces.
- .6 Make clean, smooth and neat transitions between existing work and new work. Repairs must be invisible from 2 meters with a 20/20 vision.

### **1.8 Coordination with existing work**

- .1 Consolidate, reinforce and anchor existing construction elements that must be preserved and that will support finished works. Existing elements shall be sound and stable designed to withstand loading of new Work, and shall prevent any movement likely to damage to finished Work.

### **1.9 Filling of holes in existing work that must remain exposed**

- .1 Unless otherwise indicated, overhaul, plug, wall up, seal, fill holes, depressions, pipe trenches, gaps and all other openings in existing work that must remain exposed. Use products identical to existing and perform work to match adjacent.

**1.10 Uncovering existing concealed work**

- .1 Remove from all newly uncovered surfaces that must remain exposed any foreign material such as nails, anchors and other protruding items no longer required, and all products such as mortar, plaster, adhesive, paint and other substances which affect uniformity of surfaces.

**1.11 Waste management and disposal**

- .1 Sort waste for reuse.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Project cleanliness**

- .1 Maintain Work in tidy condition, free from accumulation of waste products and debris other than that caused by the Owner or other Contractors.
- .2 Do not burn waste materials on site.
- .3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .4 Provide on-site containers for collection and disposal of waste materials and debris.
- .5 Provide and use separate identified bins for recycling. Refer to Section 01 74 21 - Construction/Demolition Waste Management and Disposal.
- .6 Dispose of waste materials and debris off site.

### **1.2 Final cleaning**

- .1 At substantial completion of Work remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.
- .2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.
- .3 Prior to final review remove surplus products, tools, construction machinery and equipment.
- .4 Remove waste products and debris other than that caused by Owner or other Contractors.
- .5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Departmental Representative. Do not burn waste materials on site, unless approved by Departmental Representative.
- .6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.
- .7 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.
- .8 Broom clean and wash exterior walks, steps and surfaces; rake clean other surfaces of grounds.
- .9 Remove dirt and other disfiguration from exterior surfaces
- .10 Clean and sweep roofs and gutters.
- .11 Sweep and wash clean paved areas.
- .12 Clean roofs, downspouts, and drainage systems.

### **1.3 Waste management and disposal**

- .1 Separate waste materials for reuse and recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management And Disposal.
-

**PART 2 - PRODUCTS**

**2.1 Not Used**

.1 Not Used.

**PART 3 - EXECUTION**

**3.1 Not Used**

.1 Not Used.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Waste management goals**

- .1 Prior to start of Work conduct meeting with Departmental Representative to review and discuss PWGSC's Waste Management Plan and Goals.
- .2 PWGSC's Waste Management Goal is to reduce the total flux of Project Waste diverted to landfill sites. Provide Departmental Representative documentation certifying that waste management, recycling, reuse of recyclable and reusable materials have been extensively practiced.
- .3 Accomplish maximum control of solid construction waste.
- .4 Preserve environment and prevent pollution and damage to environment.
- .5 Disposal of waste outside the municipality of Harrington Harbour.

### **1.2 Definitions**

- .1 Class III: non-hazardous waste - construction renovation and demolition waste.
- .2 Inert Fill: inert waste - exclusively asphalt and concrete.
- .3 Materials Source Separation Program (MSSP): consists of series of ongoing activities to separate reusable and recyclable waste material into material categories from other types of waste at point of generation.
- .4 Recyclable: ability of product or material to be recovered at end of its life cycle and re-manufactured into new product for reuse.
- .5 Recycle: process by which waste and recyclable materials are transformed or collected for purpose of being transferred into new products.
- .6 Recycling: process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for purpose of using in altered form. Recycling does not include burning, incinerating, or thermally destroying waste.
- .7 Reuse: repeated use of product in same form but not necessarily for same purpose. Reuse includes:
  - .1 Salvaging reusable materials from re-modelling projects, before demolition stage, for resale, reuse on current project or for storage for use on future projects.
  - .2 Returning reusable items including pallets or unused products to vendors.
- .8 Salvage: removal of structural and non-structural materials from deconstruction/disassembly projects for purpose of reuse or recycling.
- .9 Separate Condition: refers to waste sorted into individual types.
- .10 Source separation: acts of keeping different types of waste materials separate beginning from first time they became waste.
- .11 Waste Management Co-ordinator (WMC): contractor representative responsible for supervising waste management activities as well as coordinating related, required submittal and reporting requirements.

### **1.3 Documents**

- .1 Maintain at job site, one copy of following documents:
  - .1 Material Source Separation Plan.

#### **1.4 Submittals**

- .1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Prepare and submit following prior to project start-up:
- .3 Submit two (2) copies of Materials Source Separation Program (MSSP) description.
- .4 Submit before final payment summary of waste materials salvaged for reuse, recycling or disposal by project using deconstruction/disassembly material audit form.
  - .1 Failure to submit as prescribed could result in hold back of final payment.
  - .2 Provide receipts, scale tickets, waybills, and show quantities and types of materials reused, recycled or disposed of.
  - .3 For each material reused, sold or recycled from project, include amount in tonnes, type and size of items and destination.
  - .4 For each material landfilled or incinerated from project, include amount in tonnes of material and identity of landfill, incinerator or transfer station.

#### **1.5 Materials source separation program (MSSP)**

- .1 Prepare MSSP and have ready for use prior to project start-up.
- .2 Implement MSSP for waste generated on project in compliance with approved methods and as reviewed by Departmental Representative.
- .3 Provide on-site facilities for collection, handling, and storage of anticipated quantities of reusable and recyclable materials.
- .4 Provide containers to deposit reusable and recyclable materials.
- .5 Locate containers in locations to facilitate deposit of materials without hindering daily operations.
- .6 Locate separated materials in areas which minimize damage to materials.
- .7 Collect, handle, store on-site, and transport off-site, salvaged materials in separate condition.
  - .1 Transport to approved and authorized recycling facility or to users of material for recycling.

#### **1.6 Storage, handling and protection**

- .1 Store materials to be reused, recycled and salvaged in locations as directed by Departmental Representative.
- .2 Unless specified otherwise, materials identified for removal become Contractor's property.
- .3 Protect, stockpile, store and catalogue salvaged items.
- .4 Separate non-salvageable materials from salvaged items. Transport and deliver non-salvageable items to authorised disposal facility.
- .5 Protect structural components not removed for demolition from movement or damage.
- .6 Support affected structures. If safety of building is endangered, cease operations and immediately notify Departmental Representative.
- .7 Separate and store materials produced during dismantling of structures in designated areas.
- .8 Prevent contamination of materials to be salvaged and recycled and handle materials in accordance with requirements for acceptance by designated facilities.
  - .1 On-site source separation is recommended.

- .2 Provide bill of lading of sorted waste materials.

### **1.7 Disposal of waste**

- .1 Do not bury rubbish or waste materials.
- .2 Do not dispose of waste, volatile materials, mineral spirits, oil and paint thinner into waterways, storm, or sanitary sewers.
- .3 Keep records of construction waste including:
  - .1 Number and size of bins.
  - .2 Waste type of each bin.
  - .3 Total tonnage generated.
  - .4 Total tonnage reused or recycled.
  - .5 Reused or recycled waste destination.
- .4 Remove materials from deconstruction as deconstruction/disassembly work progresses.
- .5 Prepare project summary to verify destination and quantities on a material-by-material basis as identified in pre-demolition material audit.
- .6 All demolition or construction waste shall be transported outside Harrington Harbour by the Contractor. The Contractor shall then dispose of them.

### **1.8 Use of site and facilities**

- .1 Execute work with least possible interference or disturbance to normal use of premises.
- .2 Maintain security measures established by existing facility.

### **1.9 Scheduling**

- .1 Co-ordinate Work with other activities at site to ensure timely and orderly progress of Work.

## **PART 2 - PRODUCTS**

### **2.1 Not Used**

- .1 Not Used.

## **PART 3 - EXECUTION**

### **3.1 General**

- .1 Do Work in compliance with MSSP.
- .2 Handle waste materials not reused, salvaged, or recycled in accordance with appropriate regulations and codes.

### **3.2 Cleaning**

- .1 Remove tools and waste materials upon completion of Work. Leave work area in clean and orderly condition.

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.1 Inspection and statement of substantial completion**

- .1 Contractor's inspection: Contractor and Subcontractors to conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.
  - .1 Notify Departmental Representative in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.
  - .2 Request Departmental Representative's inspection.
- .2 Departmental Representative's inspection: Departmental Representative and Contractor to inspect Work and identify evident defects and deficiencies. Contractor to correct Work as directed.
- .3 Provisional acceptance of Work: Submit written document certifying that tasks have been performed as follows:
  - .1 Work: completed and inspected for compliance with Contract Documents.
  - .2 Defects identified during above inspections: corrected and deficiencies completed.
  - .3 Equipment, materials and systems: tested, adjusted and balanced and fully operational.
  - .4 Operation of systems, equipment and materials: demonstrated to Department personnel.
  - .5 Work: complete and ready for final inspection.
- .4 Final acceptance of work: When completion tasks are done, request final inspection of Work by Departmental Representative and Contractor jointly.
  - .1 When Superintendent considers correction work done, he must return list of deficiencies and defects to Departmental Representative with his initials in the appropriate column. No withheld payment to be released until Departmental Representative has received this list certifying that all and defects have been corrected.
  - .2 Where Work is deemed incomplete by Departmental Representative, finish outstanding items and request re-inspection.
    - .1 Only one inspection is planned by the Departmental Representative toward the final acceptance of Work. The Contractor shall bear all professional fees of a second inspection and any other subsequent inspection.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Submittals**

- .1 Provide submittals in accordance with Section 01 33 00 - Submittals
- .2 Instructions must be prepared by competent individuals who have the required expertise on the operation and maintenance of described products.
- .3 Submitted copies will be returned after final inspection of work, with Departmental Representative's comments.
- .4 Revise contents if needed before resubmitting.
- .5 Two (2) weeks prior to Substantial Performance of Work, provide Departmental Representative with four (4) final copies of operating and maintenance manuals in French.
- .6 Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work.
- .7 Provide evidence, if requested, for type, source and quality of products supplied.
- .8 Defective products will be rejected, even if they were previously inspected, and replaced at no additional charge.
- .9 Pay for transportation costs as well.

### **1.2 Operation and maintenance manual**

- .1 Prepare data in the form of an instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.
- .3 When multiple binders are used, correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: identify each binder with typed or printed title and number of project and identify subject matter of contents.
- .5 Arrange content by systems, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

### **1.3 Content of each volume**

- .1 Table of contents: provide title of project.
    - .1 Date of submission,
    - .2 Names, addresses, and telephone numbers of Departmental Representative and Contractor with names of responsible parties;
    - .3 Schedule of products and systems, indexed to content of volume.
  - .2 For each product or system:
-

- .1 Names, addresses, and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product data: mark each sheet to identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

#### **1.4 Project documents and samples**

- .1 In addition to documents mentioned in General Conditions, maintain at site for Departmental Representative one record copy of:
  - .1 Contract drawings,
  - .2 Specifications,
  - .3 Addenda,
  - .4 Change orders and other modifications to Contract,
  - .5 Reviewed shop drawings, product data and samples,
  - .6 Field test reports,
  - .7 Inspection certificates,
  - .8 Manufacturer certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage.
- .3 Label record documents and file in accordance with Section number listings in Table of Contents of this record document. Label each document with its name in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents available for inspection by Departmental Representative.

#### **1.5 Field information**

- .1 Record information on set of black line opaque drawings and in copy of record document provided by Departmental Representative.
- .2 Use fibre tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Contract Drawings and shop drawings: mark each item to record actual construction, including:
  - .1 Measured depth of foundation units, referenced to level of first finished floor,
  - .2 Measured locations in horizontal and vertical plans of service lines or underground elements, referenced to permanent features at the surface,

- .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible construction elements,
- .4 Field changes of dimension and detail,
- .5 Changes made following change orders,
- .6 Details not on original contract drawings,
- .7 References to related shop drawings and modifications.
- .5 Specifications: mark each item to record actual construction, including:
  - .1 Manufacturer's name, trade name, and catalogue number of each product actually installed, and especially optional items and substitute items,
  - .2 Changes made following addenda and change orders.
- .6 Other documents:
  - .1 Maintain manufacturer's certifications, inspection certifications, and field test records, required by individual specifications sections.

#### **1.6 Materials and finishes**

- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .3 Water repellent products and weather-exposed products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional requirements: as specified in individual specification sections.

#### **1.7 Delivery, storage and handling**

- .1 Store components subject to damage from weather in weatherproof enclosures.
- .2 Store paint and products subject to freeze in heated and ventilated premise.
- .3 Remove and replace damaged elements or products at no cost to Departmental Representative and as directed.

#### **1.8 Warranties and bonds**

- .1 Develop warranty management plan to contain information relevant to Warranties.
- .2 Submit warranty management plan, thirty (30) days before planned pre-warranty conference, to Departmental Representative for approval.
- .3 Warranty management plan to include required actions and documents to ensure that Department may benefit from guarantees provided for in the Contract.
- .4 Provide plan in narrative form and displaying sufficient detail to make it suitable for use by future maintenance and repair personnel.
- .5 Collect approved information in binder and submit upon acceptance of work. Organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

- .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible parties.
- .3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of applicable item of work.
- .4 Verify that documents are in proper form, contain full information, and are notarized.
- .5 Countersign submittals when required.
- .6 Retain warranties and bonds until time specified for submittal.
- .6 Leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .7 Conduct joint 9 month warranty inspection, measured from time of acceptance, jointly with Departmental Representative.
- .8 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organization of Contractors, subcontractors, manufacturers or suppliers concerned.
  - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs and system of sealing.
  - .3 Provide list of each warranted equipment, element, item of construction, or system indicating:
    - .1 Name of item, equipment, system or batch.
    - .2 Model and serial numbers.
    - .3 Location.
    - .4 Name and phone numbers of manufacturers or suppliers.
    - .5 Name, address and telephone number of sources of spare parts.
    - .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items, equipment, systems or batches that have extended warranties and show separate warranty expiration dates.
    - .7 Cross-reference to warranty certificates as applicable.
    - .8 Starting point and duration of warranty period.
    - .9 Summary of maintenance procedures required to continue warranty in force.
    - .10 Cross-reference to specific, relevant Operation and Maintenance manuals.
    - .11 Organization, names and phone numbers of persons to call for warranty service.
  - .4 Contractor's plans for attendance nine (9) month post-construction warranty inspections.
  - .5 Procedure and status of tagging of equipment covered by extended warranty.
  - .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification to follow oral instructions. Failure to respond will be cause for Department to proceed with action against Contractor.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Description**

- .1 This section specifies demolition of portions of buildings.

### **1.2 Related sections**

- .1 Section 01 35 29.06 - Health and safety
- .2 Section 01 73 00 - Execution requirements

### **1.3 References**

- .1 Canadian Standards Association (CSA/ CSA International)
  - .1 CSA S350-FM1980 (R1998), Code of Practice for Safety in Demolition of Structures.

### **1.4 Submittals**

- .1 Submit required shop drawings in accordance with section 01 33 00 - Submittal procedures.
- .2 Submit detailed plan indicating items to be demolished, and shoring.
- .3 Before demolition work is undertaken, seek Departmental Representative's approval of drawings that display the shoring and bracing of load-bearing walls and other walls. Drawings to be prepared by a qualified professional engineer licensed to practice in the Province of Québec and shall illustrate the proposed work method.

### **1.5 Scope of work**

- .1 Details of areas to be demolished are for information purposes only and indications are not meant to be limiting or restrictive.
- .2 Examine carefully all drawings of all trades or specialties involved in order to assess scope of work accurately.
- .3 Contractor shall use the plans as guide. The Contractor and his specialised contractors have full responsibility to gage and assess the scope of demolition required to perform construction and bring work to perfection in the spirit and intent of the architectural plans.
- .4 Proceed with care and prevent damage to elements to be salvaged, minimise further overhaul work, and never leave building elements without protection.

### **1.6 Existing conditions**

- .1 Should material like sprayed-on or trowelled asbestos applied by projection or trowel, or other substances designated or listed as 'hazardous materials' be discovered during construction, stop work, take appropriate precautions and notify Departmental Representative at once.
  - .1 Do not resume work before receiving written directions from Departmental Representative.
- .2 Notify Departmental Representative prior to hindering access to building or shutting down services.

## **PART 2 - PRODUCTS**

### **2.1 Not Used**

- .1 Not Used.

## **PART 3 - EXECUTION**

### **3.1 Preparation**

- .1 Examine site with Departmental Representative and verify location and extent of items to be removed, disposed of, recovered and recycled, and items to remain.
- .2 Locate and protect utility lines. Maintain in good condition all utilities still in service.
- .3 Notify utility companies and obtain necessary approvals prior to demolition work.
- .4 Disconnect, seal or reroute as needed any existing utility lines on site that interfere with execution of work; comply with requirements of authorities having jurisdiction. Locate operational utilities as well as other derelict services on site. Indicate locations and runs (horizontally and vertically) on as-built drawings. Support, brace and secure any lines and conduits encountered.
  - .1 Notify Departmental Representative and concerned utility company of any damage to utility lines that must be conserved.
  - .2 Notify Departmental Representative at once of the discovery of any non listed utility and await for written instructions for measures to be taken.

### **3.2 Protection**

- .1 Perform work in accordance with section 01 35 29.06 - Health and safety.
- .2 Take necessary measures to prevent displacement or sagging of utility lines, adjacent work or building elements to be preserved. Provide and install bracing or shoring as needed.
- .3 Minimise generation of dust and noise as well as inconveniences caused to occupants of premises.
- .4 Protect building equipment, mechanical and electrical installations and utility lines.
- .5 Provide guardrails, dust screens, tarpaulins, support elements and other necessary protection devices.

### **3.3 Demolition, recovery and disposal off-site**

- .1 Dismantle parts of existing building whose removal is necessary to allow for construction of new work. Sort materials and collect or stockpile separately for recycling or reuse.
- .2 Refer to relevant prescriptions and demolition drawings to identify materials to be recycled or reused.
- .3 Remove items to be reused and store as instructed by Departmental Representative. Reinstall as prescribed in relevant specification Sections.
- .4 In order to facilitate installation of new work, re-cut, re-shape edges of partially demolished components of building to tolerances specified by Departmental Representative.
- .5 Unless otherwise instructed, dispose of removed materials to appropriate recycling facilities or organizations that will reuse them in compliance with requirements of authorities having jurisdiction.

### **3.4 Concealed or unknown conditions**

- .1 Contractor shall make all required verifications in order to avoid cutting off water, gas, power, telephone and other similar services. Contractor must peruse, without limitation:
  - .1 existing mechanical, electrical and telephone drawings for new work including Departmental Representative's documents.
  - .2 information of Department or maintenance staff who have particular knowledge of premises.
  - .3 suppliers or companies, and Department's own knowledge of accurate location of their supply lines on work site.
  - .4 Where information is lacking, Contractor must probe for lines running in slabs or walls using a detector.
  - .5 Should Contractor omit to proceed with all verifications, any utility service interruption or disconnection shall be attributed to him and he shall pay for any repair, damage and additional deterioration caused to the building.
  - .6 Severing, drilling or cutting of concealed lines may not be held against the Contractor if he carried all required verifications and has submitted all evidence to Departmental Representative provided that:
    - .1 there are no details specified on the plans and in the specifications, and where Departmental Representative was unable to provide relevant information,
    - .2 Department cannot provide details on location of conduits, lines,
    - .3 companies or their technical departments cannot locate their services accurately,
    - .4 Detection tests were carried out using appropriate equipment; and that despite all these precautions, the Contractor still ignores whether one or several concealed lines exist.
  - .7 Should this be the case, Department shall bear costs. Such occurrence will be subject to a change order if Departmental Representative determines that conditions are materially different and that such occurrence is likely to increase costs to the Contractor.

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.1 Section includes**

- .1 This section specifies metal fabrication items not covered in other sections of the specifications yet indicated on the architectural and include, without limitation:
  - .1 Gutters and downspouts.
  - .2 Snow stoppers.
  - .3 Any other fabricated metallic items required to deliver complete Work although not indicated on the drawings or described in the specifications.

### **1.2 Related sections**

- .1 Section 01 33 00 - Submittal procedures.
- .2 Section 06 20 00 – Finish carpentry
- .3 Section 07 46 13 – Preformed metal siding
- .4 Section 09 91 99 - Painting for minor works.

### **1.3 References**

- .1 American Society for Testing and Materials International, (ASTM)
    - .1 ASTM A53/A53M-02, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.
    - .2 ASTM A269-02, Specification for Seamless and Welded Austenitic Stainless Steel Tubing for Service.
    - .3 ASTM A307-02, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.
  - .2 Canadian General Standards Board (CGSB)
    - .1 CAN/CGSB 1.40-97, Anti corrosive Structural Steel Alkyd Primer.
    - .2 CAN/CGSB 1.181-99, Ready Mixed, Organic Zinc Rich Coating.
  - .3 Canadian Standards Association (CSA/CSA International)
    - .1 CAN/CSA-G40.20/G40.21-F98, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steel.
    - .2 CAN/CSA-G164-FM92 (C1998), Hot Dip Galvanizing of Irregularly Shaped Articles.
    - .3 CAN/CSA-S16.1-01, Limit States Design of Steel Structures.
    - .4 CSA W48-F01, Shielded metal arc welding (prepared in partnership with Canadian Welding Bureau).
    - .5 CSA W59-FM1989(C2001), Welded Steel Construction (Metal Arc Welding) (Imperial Version).
  - .4 Environmental Choice (ECP)
    - .1 PCE/CCD-047a-98, Paints, coatings.
    - .2 PCE/CCD-048-98, Surface Coatings - Recycled.
-

#### **1.4 Submittals**

- .1 Product data
  - .1 Submit required product data as well as manufacturer's specifications and documentation in accordance with section 01 33 00 - Submittal Procedures.
- .2 Shop drawings
  - .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Shop drawings clearly indicating: materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories.
  - .3 All submitted shop drawings shall be stamped by professional engineer registered or licensed in Québec.

#### **1.5 Scope of work**

- .1 Provide and install fabricated metallic work as described above in accordance with notes and details on architectural drawings.

#### **1.6 Quality assurance**

- .1 Test Reports: Certified test reports showing compliance of materials and products with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance, physical characteristics and performance criteria.

#### **1.7 Delivery, storage, and handling**

- .1 Packing, Shipping, Handling and Unloading
  - .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.

#### **1.8 Waste management and disposal**

- .1 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .2 Collect and separate paper, plastic, polystyrene or corrugated cardboard packaging materials.
- .3 Forward unused metallic items to a metal recycling facility approved by Departmental Representative.

### **PART 2 - PRODUCTS**

#### **2.1 Materials and equipment**

- .1 Galvanised steel, grade 16
- .2 Galvanised steel plate G-90.
- .3 Galvanised steel pipe G-90
- .4 Welding materials: to CSA W59-1977.
- .5 Screws 14 x 2 HHA
- .6 Stainless steel screws
- .7 Neoprene washers

- .8 Neoprene strips
- .9 Bolts and anchor bolts in stainless steel: to ASTM A 307.
- .10 Galvanised steel angle, 6 mm thick, 125 mm x 175 mm.

## **2.2 Metal work - General**

- .1 Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured.
- .2 Use self tapping shake proof round headed screws on items requiring assembly by screws or as indicated.
- .3 Where possible, fit and shop assemble work, ready for erection.
- .4 Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.

## **2.3 Finishes**

- .1 Shop coat primer: to CAN/CGSB 1.40.
- .2 Colour: same as metal sheeting.

## **2.4 Shop painting**

- .1 Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.
- .2 Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7°C.
- .3 Clean surfaces to be field welded; do not paint.

# **PART 3 - EXECUTION**

## **3.1 Erection**

- .1 Do welding work in accordance with CSA W59 unless specified otherwise.
- .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
- .3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
- .4 Exposed fastening devices to match finish and be compatible with material through which they pass.
- .5 Provide components for building by other sections in accordance with shop drawings and schedule.
- .6 Make field connections with bolts to CAN/CSA S16.1, or weld.
- .7 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
- .8 Touch up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
- .9 Touch-up galvanized surfaces with zinc rich primer where heat damage has occurred during construction.

### 3.2 Gutters and downspouts

- .1 Gutters
  - .1 Galvanised steel, grade 16
  - .2 Size: as shown on drawings
  - .3 Length: appropriate.
- .2 Gutter support:
  - .1 Galvanised steel angle.
- .3 Downspouts
  - .1 Galvanised steel, grade 16
  - .2 Size: as shown on drawings, bent at bottom
  - .3 Length: appropriate, up to 150 mm from ground
- .4 Galvanised steel fastening straps
- .5 Galvanised "water breaker" twisted straps.

### 3.3 Snow stoppers

- .1 Galvanised steel support, 3.2 mm thick:
  - .1 Chord fastening:
    - .1 Size: 38 mm x 200 mm
    - .2 Holes: 8 holes staggered
  - .2 Chord support:
    - .1 Holes: 3 aligned holes, 32 mm of diameter, equidistant
    - .2 Plastic protector in each hole.
- .2 Galvanised steel pipe, 1.5 mm thick:
  - .1 Diameter: 25.4 mm
  - .2 Nozzle: reduced to 75 mm in length [réduit de 75mm d long]

### 3.4 Fastening

- .1 Gutters and downspouts:
  - .1 Fasten gutters with stainless steel screws.
  - .2 Fasten twisted straps 610 mm center-to-center to hold the gutter
  - .3 Fasten downspout with fastening straps 915 mm center-to-center.
- .2 Snow stoppers:
  - .1 Stick neoprene strip under the fastening chord.
  - .2 To erect snow stopper, assemble supports and pipes as indicated on architectural drawings.
  - .3 Fasten support brackets to the roof with screws. Place neoprene washer between screws and supports. Tighten to 50% to prevent crushing the neoprene.

### **3.5 Touch up of welds on galvanised work**

- .1 Touch up welds with coating (cold) as follows:
  - .1 Degrease surfaces with steam under 140 bar pressure at 80° C.
  - .2 Use light sandblast or rotating abrasive grinding wheel to roughen surfaces. Observe manufacturer's instructions concerning surface preparation processes and results thereof.
  - .3 Dust with non-contaminated compressed air to ISO 8502-3 (class 2).
  - .4 Treat entire prepared surface until specified thickness of dry coating is achieving.

### **3.6 Cleaning**

- .1 Clean metallic work after their installation and remove dust produced by construction work or surrounding environment.
- .2 At work completion, remove all debris, tools and barricades used to protect equipment.

**END OF SECTION**



## **PART 1 - GENERAL**

### **1.1 Section includes**

- .1 This section governs the installation of frames, doors and other wood elements not covered in other sections and indicated on drawings, including without limitations:
  - .1 Wood furring
  - .2 Oriented strand board (OSB) panels.

### **1.2 Related sections**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 61 00 - Common Product Requirements.
- .3 Section 07 26 00 – Vapour retarders.
- .4 Section 07 27 00.02 – Air barriers.
- .5 Section 07 46 13 – Preformed metal siding.
- .6 Section 09 91 99 - Painting for minor works.

### **1.3 References**

- .1 Architectural Woodwork Manufacturers Association of Canada (AWMAC)
  - .1 AWMAC Quality Standards for Architectural Woodwork 1994.
- .2 Canadian Standards Association (CSA)
  - .1 CSA B111-74 (R1998), Wire Nails, Spikes and Staples.
- .3 National Hardwood Lumber Association (NHLA)
  - .1 Rules for the Measurement and Inspection of Hardwood and Cypress January 1996.

### **1.4 Shop drawings**

- .1 Submit specified shop drawings in accordance with section 01 33 00 - Submittal procedures.
- .2 Indicate details of construction, profiles, jointing, fastening and other related details.
- .3 Indicate materials, thicknesses, finishes and hardware.

### **1.5 Samples**

- .1 Submit specified samples in accordance with section 01 33 00 - Submittal procedures.
- .2 Submit two (2) samples of each product used of size of 300 mm x 300 mm or 600 mm in length, unless specified otherwise.

### **1.6 Scope of work**

- .1 Provide, replace and install components as stated above in accordance with notes and details on architectural plans.

### **1.7 Delivery, storage, and handling**

- .1 Deliver, handle, store and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Protect materials against dampness during and after delivery.
- .3 Store materials in ventilated areas, protected from humidity and extreme temperature variations.

## **PART 2 - PRODUCTS**

### **2.1 Heavy timber**

- .1 Lumber: unless specified otherwise, S4S (smooth on four sides), moisture content not exceeding 18% (R-SEC).
  - .1 In accordance with CSA-O141.
  - .2 In accordance with NLGA Standard Grading Rules for Canadian Lumber.

### **2.2 Panel material**

- .1 Panel materials in pressed wood particles (large particles OSB) to CAN3-O437.0.
  - .1 Certified by Forest Stewardship Council (FSC).
- .2 Douglas fir plywood (DFP): to CSA O121, standard construction, classification "construction", category "standard", type exterior, good on 1 side (G1S).
  - .1 Certified by Forest Stewardship Council (FSC).

### **2.3 Accessories**

- .1 Nails and staples: to CSA B111; galvanized to CAN/CSA-G164 for exterior work, interior humid areas and for treated lumber; plain finish elsewhere.
- .2 Wood screws: plain, type and size to suit application.

## **PART 3 - EXECUTION**

### **3.1 Installation**

- .1 Comply with requirements of NBC 2020 Part 9 and to following requirements.
  - .2 Position items accurately, level, plumb, true and fasten or anchor securely.
  - .3 Make continuous elements from the longest possible pieces.
  - .4 Install joist elements as to set bowing upwards.
  - .5 Install wall cladding panels in accordance with manufacturer's written instructions.
  - .6 Install roof cladding panels in accordance with requirements of NBC 2010.
  - .7 Install furrings to support vertically installed siding when the wood frame is without blocking or when cladding cannot be directly nailed to it. Install furring and blocking to ensure the flatness and verticality of work. Admissible deviation is 1:600.
  - .8 Install subframes around the openings, furring strips and trims to support assemblies and other work as planned.
-

- .9 Do not work particleboard panels without taking the necessary precautions. Use dust collectors and high-quality respirator to cut and sand down wood panels.

### **3.2 Construction**

- .1 Assemble, anchor, fasten and brace items to ensure necessary strength and stiffness.
- .2 If needed, countersink holes to prevent bolt projection.

### **3.3 Furrings**

- .1 Install furrings as indicated on drawings.

### **3.4 OSB panels**

- .1 Install when existing panel under siding needs to be replaced in accordance with replacement instructions described on drawings.
- .2 Install furrings as indicated on drawings.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Description**

- .1 This section specifies blanket insulations.

### **1.2 Related sections**

- .1 Section 01 33 00 – Submittal procedures
- .2 Section 02 41 17 – Selective demolition
- .3 Section 06 20 00 – Finish carpentry

### **1.3 References**

- .1 American Society for Testing and Materials (ASTM)
- .2 ASTM C553-11, Specification for Mineral Fibre Blanket Thermal Insulation for Commercial and Industrial Applications.
- .3 ASTM C665-11, Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing.
- .4 ASTM C1320-10, Standard Practice for Installation of Mineral Fiber Batt and Blanket Thermal Insulation for Light Frame Construction.
- .5 Canadian Gas Association (CGA), CAN/CGA B149.1-F05, Natural Gas and Propane Installation Code Handbook.
  - .1 CAN/CGA B149.2, Propane Storage and Handling Code.
- .6 Canadian Standards Association (CSA International)
  - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
- .7 Underwriters Laboratories of Canada (ULC)
  - .1 CAN/ULC-S604-M1991, Factory Built, Type A Chimneys.
  - .2 CAN/ULC-S702-1997, Thermal Insulation, Mineral Fibre, for Buildings.

### **1.4 Submittals**

- .1 Product data
  - .1 Submit manufacturer's printed product literature, specifications and technical data sheets in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Provide three (3) copies of required data sheets under Workplace Hazardous Materials Information System (WHMIS) in accordance with system and section 01 33 00 - Submittal Procedures. Product data must specify VOC emission rate of insulation products and adhesives.
- .2 Manufacturer's instructions
  - .1 Submit installation instructions provided by manufacturer.

### **1.5 Quality assurance**

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying that materials comply with specified characteristics, physical properties and performance criteria.
- .3 One (1) week prior to start of work, hold meeting to discuss following items:
  - .1 work requirements;
  - .2 condition of substrates and installation conditions;
  - .3 coordination with work carried out by other trades.
  - .4 manufacturer's instructions on installation and warranty provided by manufacturer.

### **1.6 Delivery, storage, and handling**

- .1 Deliver, store, and handle blankets and fibreglass panels in accordance with manufacturer's written instructions.
- .2 Store and keep materials in original packaging, inside, and in dry location. Prevent contact with floor or wet surfaces.
- .3 Protect materials against weather conditions and store according to manufacturer's recommended ambient temperature and moisture content in air.

### **1.7 Scope of work**

- .1 Provide and install insulation as described above and in accordance with notes and details on the architectural drawings.
- .2 Blanket insulation to be set in hollow walls, roof and other cavities.
- .3 All various other insulation products not listed here or in other sections of the specification yet that are necessary to deliver complete Work.

### **1.8 Placement conditions**

- .1 Proceed with insulation only when weather conditions (risk of shower, high degree of humidity) and temperature of surfaces to insulate are within acceptable limits in order to prevent condensation.
- .2 Comply with safety requirements set forth in the material safety data sheets (MSDS) provided by the manufacturer and to Workplace Hazardous Materials Information System (WHMIS) concerning the use, handling, storage and disposal of insulating materials.

### **1.9 Waste management and disposal**

- .1 Sort waste for recovery/reuse and recycling.
  - .2 Remove from site all packaging materials and dispose of at an appropriate recycling facility.
  - .3 Recover and separate paper, plastic, polystyrene, and corrugated board packaging and store in appropriate bins on site for recycling purposes.
-

## **PART 2 - PRODUCTS**

### **2.1 Blanket insulation**

- .1 Mineral fiber matts made from basalt (volcanic rock) and slag.
  - .1 To CAN/ULC-S702-97.
  - .2 Type: 1.
  - .3 Mass density: 70 kg/m<sup>3</sup>.
  - .4 RSI value: 0,74 m<sup>2</sup>k/W for 25,4 mm thickness.
  - .5 Thickness: as indicated on architectural drawings.
  - .6 Size: as indicated on architectural drawings.

### **2.2 Accessories**

- .1 Fasteners
  - .1 Fasteners: [du type traversant], 0.8 mm thick, 50 mm wide, in cold-formed carbon steel and perforated; underside covered with adhesive; annealed steel rod 2.5 mm in diameter, appropriate length for product thickness; self-locking washers 25 mm in diameter.
- .2 Nails: galvanised steel, 25 mm longer than thickness of material, to CSA B111.
- .3 Clips: [pattes d'agrafes—lugs, brackets, flanges, tabs, legs ... ] at least 12 mm long.
- .4 Tape: follow manufacturer's recommendation.
- .5 Adhesive: follow manufacturer's recommendation.

## **PART 3 - EXECUTION**

### **3.1 Manufacturer's instructions**

- .1 Conformity: comply with manufacturer's written requirements, recommendations and specifications, including technical bulletins and reviewed installation instructions provided in product catalogue, on packaging and technical data sheets.

### **3.2 Quality of workmanship**

- .1 Install insulation to maintain continuity of thermal protection of building elements and voids to ASTM C1320.
- .2 Secure insulation using nails, clips, insulation fasteners or installed metallic fasteners as recommended by the manufacturer.
- .3 In roof and wall cavities, install insulation with face on cold side in contact with entire surface of intermediate sheathing.
- .4 Fit product carefully onto insulated elements and around electrical boxes, piping, air ducts, and through assemblies.
- .5 Avoid compressing insulation to fit into voids, spaces.

- .6 Keep insulation minimum 75 mm from heat emitting devices such as recessed light fixtures, and at least 50 mm from type A chimneys to CAN/ULC-S604; and Type B and L flues to CAN/CGA-B149.1 and CAN/CGA-B149.2.
- .7 Do not conceal insulation until inspected and approved by Departmental Representative.

### **3.3 Verification of support**

- .1 Verify the support onto which insulation will be installed and notify Departmental Representative at once and in writing of any flaws identified.
- .2 Prior to start of work,
  - .1 Ensure that substrate is solid, straight, smooth and dry, that it is free of snow, ice, frost, dust and debris.

### **3.4 Cleaning**

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and safety barriers.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Section includes**

- .1 Requirements relating to products and installation of vapour retarder materials.

### **1.2 Related sections**

- .1 Section 06 20 00 – Finish carpentry
- .2 Section 07 21 16 – Blanket insulation
- .3 Section 07 46 13 – Preformed metal siding
- .4 Section 07 62 00 – Sheet metal flashing and trim
- .5 Section 07 92 00 – Joint sealants

### **1.3 Priority**

- .1 In work carried out for federal government, Division 1 sections have priority on technical sections of other divisions of project specification.

### **1.4 References**

- .1 Canadian General Standards Board (CGSB)
- .2 CAN/CGSB-51.33-M89, Vapour Barrier Sheet, Excluding Polyethylene, for Use in Building Construction.
- .3 CAN/CGSB-51.34-M86, Polyethylene Vapour Barrier Sheet, for Use in Building Construction.

### **1.5 Mock-ups**

- .1 Submit mock-ups in accordance with Section 01 33 00 - Submittal Procedures.
  - .2 Product data
    - .1 Submit required products data as well as manufacturer's product specifications and documentation. Product data to indicate:
    - .2 product characteristics;
    - .3 performance criteria;
    - .4 constraints.
  - .3 Provide two (2) copies of required MSDS data sheets under Workplace Hazardous Materials Information System (WHMIS).
  - .4 Quality assurance
    - .1 Certificates: Product certificates signed by manufacturer certifying that materials comply with specifications with respect to physical characteristics and performance criteria.
    - .2 Instructions: furnish manufacturer's installation instructions and comply with latter's requirements, recommendations and specifications, including technical bulletins, installation instructions, handling and storage, and indications on data sheets.
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## 1.6 Scope of work

- .1 Supply and installation of vapour retarder membranes to be applied around openings in outside walls.
- .2 Supply and installation of vapour retarder membranes to be applied to frames and around windows.
- .3 Supply and installation of vapour retarder films under the metal roofing.

## PART 2 - PRODUCTS

### 2.1 Vapour retarder

- .1 Type 1: Self-adhesive vapour retarder membrane to CAN/CGSB – 51.33-M89, ASTM D412, ASTM D882, ASTM E154 and ASTM E96.
  - .1 Membrane composed of a rubberized SBS asphalt compound fully laminated to a polyethylene film.
  - .2 Characteristics:
    - .1 Thickness: 1,0 mm.
    - .2 Upper surface: cross-laminated polyethylene
    - .3 Inner surface: siliconized separation film
    - .4 Flexible at lower temperatures
    - .5 Elongation at rupture: minimum 200%.
    - .6 Ultimate strength: 3,4 MPa minimum
    - .7 Vapour permeance: 1,6ng/Pa.s.m<sup>2</sup> (0,03perm)
    - .8 Self-healing when punctured by self-threading screws.
- .2 Type 2: High temperature underlay membrane for self-adhesive roof to ASTM D412, ASTM D1970, ASTM D903, ASTM D1970, ASTM E 2178 and ASTM E96.
  - .1 Membrane composed of a high-fusion point rubberized SBS asphalt compound laminated to a crossed polyethylene film.
  - .2 Characteristics:
    - .1 Thickness: 1,0 mm.
    - .2 Application temperature: 5° C
    - .3 Elongation at rupture: minimum 250%.
    - .4 Tensile strength: 4128 kN/m<sup>2</sup> minimum
    - .5 Adhesion to plywood:
      - .6 850 N/m
    - .7 Vapour permeance: 2.8 ng/Pa.s.m<sup>2</sup> (0,05perm)

### 2.2 Accessories

- .1 Seaming Tape: air-tight duct tape, applied with light pressure, approved by vapour retarder manufacturer and at least 50 mm wide.

- .2 Sealant: product compatible with the vapour retarder and approved by manufacturer, to section 07 92 00 - Joint sealants.
- .3 Clips: legs at least 6 mm long.
- .4 Box-shaped vapour retarder accessories: polyethylene boxes, factory moulded, used for recessed switches and outlet boxes.
- .5 Air-vapour retarder primer: solvent-base product applied to prepare surfaces before installation of self-adhesive membranes, to manufacturer's recommendations.

### **2.3 Sealant - locations**

- .1 Around doors and window frames: Type 1 product.
- .2 Flashing work: Type 1 product.
- .3 Roof water tightness work: Type 2 product.

## **PART 3 - EXECUTION**

### **3.1 Installation**

- .1 Refer to manufacturer's recommendations.
- .2 Ensure that utilities lines are installed and were inspected before installing vapour retarder.
- .3 Prior to installing plasterboard, place vapour retarder sheets on the warm side of outside walls, ceiling and floor, to form a continuous barrier.
- .4 Use largest possible sheets to minimise number of joints.
- .5 Ensure that sheets form continuous barrier. If need be, repair perforations and tears with seal strip before covering work.

### **3.2 Openings in exterior surfaces**

- .1 Cut vapour retarder sheets to the size of openings. Make them lap over framing elements and seal joints.

### **3.3 Peripheral joints**

- .1 Seal surround of vapour retarder as described below.
  - .1 Apply continuous bead of sealant on support, at sheet perimeter.
  - .2 Place edges of sheet on the bead of sealant and press firmly.
  - .3 Attach vapour retarder to wood support with clips on the lap joints, along the bead of sealant bead.
  - .4 Ascertain that the bead of sealant is continuous. Smooth out folds and curls formed on the sheet where it laps over the bead of sealant.

### **3.4 Lap joints**

- .1 Seal lap joints as described below.
  - .1 Attach first sheet to support.

- .2 Apply continuous bead of sealant on the edge of the first sheet, which must coincide with rigid support.
- .3 Make the next sheet overlap over at least 150 mm and press firmly onto bead of sealant.
- .4 Attach the vapour retarder to a wood support with clips on the lap joints, along the bead of sealant.
- .5 Ensure that the sealant string is continuous. Smooth out folds and waves forming on the sheet where it laps over the bead of sealant.

### **3.5 Electrical boxes**

- .1 Seal, as described below, joints around switch and outlet boxes that pass through the vapour retarder.
- .2 Install a box-shaped vapour retarder or wrap boxes with enough vapour retarder film to ensure overlap is at least 300 mm all around.
- .3 Apply sealing product to seal the joints between the overlapping sections and the main vapour retarder. Seal openings where wiring enters the box.

### **3.6 Membrane at underside of metal roofing**

- .1 Clean and dry the substrate.
- .2 Apply primer with brush or roller.
- .3 Leave primer to dry. The surface must be covered on the same day.
- .4 Roll, position, and cut membrane.
- .5 Make a leader by exposing 150 mm the siliconized sheet.
- .6 Stick the membrane to the substrate while rolling the siliconized sheet.
- .7 When the membrane is applied, press on the entire surface with a rubber roller to prevent trapping air.

### **3.7 Cleaning**

- .1 Carry out cleaning in accordance with section 01 74 11 - Cleaning.
- .2 Upon completion of installation and after performance control, remove surplus materials, rubbish, tools and equipment.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Section includes**

- .1 Requirements related to air barrier products and installation.

### **1.2 Related sections**

- .1 Section 06 20 00 – Finish carpentry
- .2 Section 07 21 16 – Blanket insulation
- .3 Section 07 46 13 – Preformed metal siding
- .4 Section 07 62 00 – Sheet metal flashing and trim
- .5 Section 07 92 00 – Joint sealants

### **1.3 Precedence**

- .1 In work carried out for the federal government, sections of Division 1 have priority on technical sections of other divisions of project specification.

### **1.4 References**

- .1 American Architectural Manufacturers Association (AAMA)
  - .1 AAMA 501, Methods of Test for Metal Curtain Walls.
- .2 American Society for Testing and Materials (ASTM)
  - .1 ASTM E 783-93, Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors.
  - .2 ASTM E 330-97e1, Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static air Pressure Difference.
  - .3 ASTM E 1186-98, Standard Practices for Air Leakage Site Detection in Building Envelope and Air Retarder Systems.

### **1.5 Performance requirements**

- .1 Select and install roof and wall elements and assemblies to prevent air leaks caused by static pressure of air on outside walls and roof, including windows, glazing, doors, roof hatches, and other interruption of air tightness in walls and roof.
- .2 If qualitative tests are required throughout installation of seal system, they shall be performed to methods described in ASTM E 1186.
- .3 Ensure continuity between materials and air and water-vapour barriers, and between materials described in sections 07 26 00 – Vapour retarder and 07 92 10 - Joint sealants.

### **1.6 Submittals**

- .1 Submit required shop drawings in accordance with Section 01 33 00 - Submittal Procedures.
    - .1 Shop drawings must show the special jointing characteristics.
  - .2 Submit required product data in accordance with section 01 33 00 - Submittal Procedures.
-

.1 Product data must show the characteristics of the materials, performance requirements and constraints.

.3 Submit manufacturer's instructions in accordance with section 01 33 00 - Submittal Procedures.

### **1.7 Quality assurance**

.1 Perform work in accordance with manufacturer's requirements.

.2 Maintain one copy of documents on site.

### **1.8 Mock-ups**

.1 Construct mock-up in accordance with Section 01 45 00 - Quality Control.

.2 Construct panel representative of outside wall composition, 1 m x 1 m, incorporating wall openings with frame and support, a building corner, and connection to roof leak-tightness system. Panel must allow for inspection of interfaces and product assemblies, and between seal materials.

.3 Locate where directed by Departmental Representative.

.4 Mock-up may remain as part of the Work.

.5 Allow 24 h for inspection of mock-up by Departmental Representative before proceeding with work.

### **1.9 Scope of work**

.1 Supply and installation of seal sheets applied around openings in outside walls.

.2 Supply and installation of seal sheets applied around window frames and perimeter.

.3 Supply and installation of vapour retarder films behind siding of outside walls.

### **1.10 Delivery, storage, and handling**

.1 Deliver, store and handle equipment and materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver, store and handle materials as instructed by Departmental Representative in writing.

.3 Avoid spillage. Immediately notify Departmental Representative if spillage occurs and proceed to clean up.

### **1.11 Waste management and disposal**

.1 Place in designated container products that fall under hazardous or toxic substance definitions.

.2 Ensure that empty containers are sealed and properly stored until disposal, and kept out of the reach of children.

### **1.12 Work schedule**

.1 Co-ordinate the installation of the air and water vapour barrier systems with the installation of related seal systems.

### **1.13 Warranty**

.1 Guarantee to include sheet material sealing which would fail to achieve air tightness and water tightness, which exhibit loss of adhesion or cohesion, or which do not cure.

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## **PART 2 - PRODUCTS**

### **2.1 Equipment and materials**

- .1 Materials that will perform to specified criteria and are compatible with adjoining elements.

## **PART 3 - EXECUTION**

### **3.1 Preparation**

- .1 Prepare substrate surfaces conditions for air and water vapour barrier installation according to manufacturer's instructions.

### **3.2 Installation**

- .1 Install air and water vapour barriers in accordance with manufacturer's instructions.
- .2 Install or apply sealants in accordance with manufacturer's instructions.
- .3 Install sealants when temperature is within recommended temperature range.

### **3.3 Protection of work**

- .1 Protect finished Work in accordance with Section 01 61 00 - Common Product Requirements.
- .2 Do not permit adjacent work to damage work of this section.

**END OF SECTION**

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## **PART 1 - GENERAL**

### **1.1 Description**

- .1 Requirements related to metal siding and related installation method.

### **1.2 Related sections**

- .1 Section 01 33 00 - Submittal Procedures
- .2 Section 07 27 00.02 – Air Barrier
- .3 Section 07 62 00 – Sheet Metal Flashing and Trim
- .4 Section 07 92 00 - Joint Sealants.

### **1.3 References**

- .1 American National Standards Institute (ANSI).
    - .1 ANSI B18.6.4-99, Thread Forming and Thread Cutting Tapping Screws and Metallic Drive Screws.
  - .2 American Society for Testing and Materials International, (ASTM).
    - .1 ASTM D2369-03, Test Method for Volatile Content of Coatings.
    - .2 ASTM D2832-92(R1999), Guide for Determining Volatile and Non-volatile Content of Paint and Related Coatings.
    - .3 ASTM D5116-97, Guide For Small-Scale Environmental Chamber Determinations of Organic Emissions From Indoor Materials/Products.
  - .3 Canadian General Standards Board (CGSB).
    - .1 CAN/CGSB-51.32-M77, Sheathing, Membrane, Breather Type.
    - .2 CAN/CGSB-93.2-M91, Prefinished Aluminum Siding, Soffits and Fascia, for Residential Use.
    - .3 CAN/CGSB-93.3-M91, Prefinished Galvanised and Aluminum-Zinc Alloy Steel Sheet for Residential Use.
    - .4 CAN/CGSB-93.4, Galvanized and Aluminum-Zinc Alloy Coated Steel Siding Soffits and Fascia, Prefinished, Residential.
    - .5 CAN/CGSB-93.5-92, Installation of Metal Residential Siding, Soffits and Fascia, for Residential Use.
  - .4 Canadian Standards Association (CSA)
    - .1 CSA B111-1974(R2003), Wire Nails, Spikes and Staples.
  - .5 Environmental Choice Program (ECP).
    - .1 DCC-045-95, Sealants and Caulks.
  - .6 Underwriters' Laboratories of Canada (ULC).
    - .1 CAN/ULC-S706-02, Standard for Wood Fibre Thermal Insulation for Buildings.
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#### **1.4 Submittals**

- .1 Submit manufacturer's printed product literature, specifications and technical data sheets in accordance with Section 01 33 00 - Submittal Procedures.
  - .1 Provide two (2) copies of required data sheets under Workplace Hazardous Materials Information System (WHMIS) compliant with system and in accordance with section 01 33 00 - Submittal Procedures. Product data must specify VOC emission rate of sealants and caulks during their application.
- .2 Shop drawings
  - .1 Submit specified shop drawings in accordance with section 01 33 00 - Submittal procedures.
  - .2 Shop drawings to indicate dimensions, profiles, attachment methods, wall elevations, trim and closure pieces, soffits, fascia, and related items.
- .3 Samples
  - .1 Submit specified shop drawings in accordance with section 01 33 00 - Submittal procedures.
  - .2 Submit samples 305 mm x 305 mm of siding material, colour and section as specified.
- .4 Manufacturer's instructions
  - .1 Submit manufacturer's installation instructions.
- .5 Fastening pattern
  - .1 Submit fastening pattern approved by manufacturer and designed to withstand wind-loads on buildings.

#### **1.5 Quality assurance**

- .1 Test Reports: Certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: Product certificates signed by manufacturer certifying that products and materials comply with specified performance criteria and physical characteristics.
- .3 Pre-installation meeting: hold meeting during which work requirements, manufacturer's instructions concerning installation, and manufacturer's terms of warranty offered will be discussed.

#### **1.6 Waste management and disposal**

- .1 Divert from landfill and dispose of metal waste in recycling bins on site.
- .2 Forward materials that can be reuse to the nearest construction materials recycling facility.
- .3 Forward unused sealants and caulks to an authorised hazardous materials collection site.

### **PART 2 - PART 2 - PRODUCTS**

#### **2.1 Steel siding items**

- .1 Corrugated panel: smooth surface, for vertical installation, to CGSB 93.4.
  - .1 Steel nominal thickness: grade 18 (1.22 mm).
  - .2 Panel size:
    - .1 Width: 915mm

- .2 Length: up to 10 668 mm
- .3 Section:
  - .1 Thickness: 38 mm
  - .2 Undulation: 134 mm
- .4 Finish: two coatings of PVC plastisol sealer 300 µm (12 mils)
- .5 Colour:
  - .1 Walls: white
  - .2 Roof: red

## **2.2 Accessories**

- .1 Exposed trim: inside corners, outside corners, cap strip, drip cap, undersill trim, starter strip and window/door trim of same material, colour and gloss as cladding.

## **2.3 Fasteners**

- .1 Nails: to CSA B111. Screws to ANSI B18.6.4. Special fabrication items to be in stainless steel.

## **2.4 Caulking**

- .1 See section 07 92 00 - Joint Sealants

## **2.5 Sheathing membrane**

- .1 See section 07 26 00 - Vapour Retarder

# **PART 3 - PART 3 - EXECUTION**

## **3.1 Manufacturer's instructions**

- .1 Conformity: comply with manufacturer's written requirements, recommendations and specifications, including any available technical bulletin, product catalogue installation instructions, product packaging, and indications on technical data sheets.

## **3.2 Installation**

- .1 Install cladding in accordance with CGSB 93.5, and manufacturer's written instructions
- .2 Install one layer exterior wall sheathing membrane horizontally in accordance with section 07 26 00 - Vapour Retarder.
- .3 Install continuous starter strips, inside and outside corners, edgings, soffit, drip, cap, sill and window/door opening flashings as indicated.
- .4 Install outside corners, fillers and closure strips with carefully formed and profiled work.
- .5 Install soffit and fascia cladding as indicated.
- .6 Maintain joints in exterior cladding, true to line, tight fitting, hairline joints.
- .7 Attach components in manner not restricting thermal movement.
- .8 Caulk junctions with adjoining work with sealant. Do work in accordance with Section 07 92 00 - Joint Sealants.

### **3.3 Cleaning**

- .1 Upon completion of installation, remove surplus materials, rubbish, tools and temporary safety barriers.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Section includes**

Work of this section includes, without limitation:

- .1 Materials, preparation, and installation methods concerning metal flashing and trim products.

### **1.2 Related sections**

- .1 Section 01 33 00 - Submittal Procedures
- .2 Section 07 26 00 – Vapour Retarders
- .3 Section 07 27 00.02 – Air Barriers
- .4 Section 07 46 13 – Preformed Metal Siding
- .5 Section 07 92 00 – Joint Sealants

### **1.3 References**

- .1 American Society for Testing and Materials (ASTM International)
- .2 ASTM A167-99, Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

### **1.4 Samples and shop drawings**

- .1 Submit required shop drawings in accordance with section 01 33 00 - Submittal Procedures.
- .2 Submit duplicate 50 x 50 mm samples of finish, of colour and sheet type specified.

### **1.5 Waste management and disposal**

- .1 Dispose of all packaging materials off-site to authorised recycling facilities.
- .2 Recover and sort paper, plastic, polystyrene, and corrugated board packaging.
- .3 Place in designated container materials and substances that fall under hazardous or toxic product definitions.
- .4 Ensure that empty containers are sealed and properly stored for disposal out of the reach of children.
- .5 Forward unused metal to a metal recycling facility approved by Departmental Representative.
- .6 Do not pour unused paint products or sealant in sewers, streams, lakes, in the ground or where they could pose risks to health or environment.
- .7 Fold banding metal strapping, flatten and place in designated location for recycling.

### **1.6 Scope of work**

- .1 Provide and/or install metal flashing and trim, and metal accessories on all buildings as indicated on architectural drawings, notes and details, without limitation:
- .2 Flashing once new windows are installed in outside walls receiving new siding ; flashing and trim with the installation of new exterior siding.
- .3 Metal siding covering walls and roof.

## **PART 2 - PRODUCTS**

### **2.1 Sheet metal**

- .1 Galvanised steel sheets: to ASTM A167, grade 304, 1.2 mm in thickness (gage 18).

### **2.2 Accessories**

- .1 Sealants: in accordance with section 07 92 00 - Joint Sealants.
- .2 Retaining clips: same material and grade as sheet used, at least 50 mm wide and same thickness as sheet to be fastened.
- .3 Back joint cover: same material as sheet used, 0,9 mm thick (grade 20) extending at least 100 mm in width on each side of joint.

### **2.3 Metal flashing**

- .1 Form flashing to profiles indicated; use 1.2 mm thick galvanised steel sheet with anodised brushed finish.
- .2 Fabricate metal flashing and other sheet metal work as indicated.
- .3 Form pieces in 2400 mm maximum lengths. Make allowance for expansion at joints.
- .4 Hem exposed edges on underside 12 mm. Mitre and seal corners with clear sealant.
- .5 Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

### **2.4 Colour**

- .1 Same as adjacent siding, vinyl finish. Validate choice of colours with Departmental Representative.

## **PART 3 - EXECUTION**

### **3.1 Installation**

- .1 Conceal fastenings except where approved by Departmental Representative before installation.
- .2 Lock end joints and caulk with sealant.
- .3 Provide backing with all metal flashing joints.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Section includes**

- .1 Materials, preparation, and installation methods of sealants, caulks, and fire retardants.
- .2 Paragraphs intended to complete other sections dealing with instructions about building sealant, caulking, and fire retardants.

### **1.2 Related sections**

- .1 Section 01 33 00 - Submittal Procedures.
- .2 Section 01 45 00 - Quality Control.
- .3 Section 01 61 00 - Common Product Requirements.
- .4 Section 07 46 13 – Preformed Metal Siding
- .5 Section 07 62 00 - Sheet Metal Flashing and Trim.

### **1.3 References**

- .1 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB 19.13-M87, Sealing Compound, One-Component, Elastomeric, Chemical Curing.
  - .2 CGSB 19-GP-14M Sealing Compound, One Component, Butyl Polyisobutylene Polymer Base, Solvent Curing.

### **1.4 Submittals**

- .1 Submit required product data in accordance with section 01 33 00 - Submittal Procedures.
- .2 Manufacturer's product data must describe:
  - .1 Caulking products;
  - .2 primers;
  - .3 sealants (all types) including their compatibility with one another.
- .3 Submit required samples in accordance with section 01 33 00 - Submittal Procedures.
- .4 Submit two (2) samples of each colour and type of material incorporated in Work.
- .5 If needed for the purpose of harmonisation, submit dry samples of each colour proposed for sealants that will remain exposed.
- .6 Submit manufacturer's instructions in accordance with section 01 33 00 - Submittal Procedures.

### **1.5 Quality Assurance/Mock-ups**

- .1 Provide required mock-ups in accordance with section 01 45 00 - Quality Control.
  - .2 Mock-ups to show: location, size, joints profile and depth including backing, primer, sealant, and caulk.
  - .3 Mock-ups will be used to:
    - .1 Assess quality of workmanship, preparation of substrate, proper operation of equipment and installation of materials.
-

- .4 Provide mock-ups where indicated.
- .5 Wait 24 h before starting sealing work to allow inspection of mock-ups by Departmental Representative.
- .6 Once approved, mock-ups will constitute minimal standard to observe for Work and will be incorporated in Work.

#### **1.6 Delivery, storage, and handling**

- .1 Deliver, store, and handle equipment and materials in accordance with section 01 61 00 - Common Product Requirements.
- .2 Deliver and store materials in unopened containers and packaging, with manufacturer's seal and label. Protect materials against water, humidity and frost. Do not place directly on ground or floor.

#### **1.7 Waste management and disposal**

- .1 Sort waste for reuse and recycling.
- .2 Dispose all packaging materials off-site to appropriate recycling facilities.
- .3 Recycle all paper, plastic, polystyrene, and corrugated board packaging.
- .4 Place in designated container any hazardous or toxic substances that fall under that category.
- .5 Handle and dispose of hazardous materials in accordance with the Canadian Environmental Protection Act, Dangerous Goods Transportation Act, and with local and regional regulations.
- .6 Do not pour unused sealing products in sewers, streams, lakes, and in the ground or where they pose risks to health or environment.
- .7 Forward unused sealing products to an authorised hazardous materials collection site approved by Departmental Representative.
- .8 Empty sealant containers in plastic are not recyclable. Do not mingle with plastic items to be recycled.
- .9 Fold banding metal strapping, flatten and place in designated location for recycling.

#### **1.8 Installation conditions**

- .1 Environment
  - .1 Do not install sealants when:
    - .1 atmospheric temperature or substrate temperature are outside the established manufacturer's limits or below 4.4°C.
    - .2 substrate is moist.
- .2 Width of joints
  - .1 Do not install sealants when width of joint is narrower than indicated by manufacturer.
- .3 Substrate
  - .1 Do not install sealants before substrate has been cleared of all contaminants likely to hinder product adhesion.

#### **1.9 Environment requirements**

- .1 Comply with requirements of Workplace Hazardous Materials Information System (WHMIS) concerning usage, handling, storage, and disposal of hazardous materials as well as labelling with and supply of material safety data sheets recognised by Labour Canada.

- .2 Observe manufacturer's recommendations concerning temperatures, relative humidity, and moisture content of substrate deemed adequate for the installation and drying of sealants, and any special instructions concerning their use.
- .3 Ventilate work areas in accordance with Departmental Representative with approved portable fan blowers and exhaust fans.

## **PART 2 - PRODUCTS**

### **2.1 Sealing products**

- .1 Limit usage of toxic products to areas where fumes released can be extracted outside, or where they are confined behind an air barrier system. Alternatively, apply such products several months prior to occupation of premises in order to allow evacuation of noxious fumes over the longest period possible.
- .2 In the case of listed two-component sealants, only that primer may be used with the sealant.

### **2.2 Sealants - description**

- .1 Type 1: Sealant with one (1) component, urethane-based, non-sagging, to CAN/CGSB-19.13-M87.
  - .1 Relative density: 1.237
  - .2 Application temperature: 4° to 38°C
  - .3 Service temperature: -40° to 77°C
  - .4 Reversible deformation ASTM C719: >90%
  - .5 Tensile properties ASTM D412 (21-day):
    - .1 Tensile strength: 1.37 MPa
    - .2 Elongation at rupture: 500%
    - .3 Modulus of elasticity:
      - .1 25% for 0.24 MPa
      - .2 50% for 0.41 MPa
      - .3 100% for 0.59 MPa
  - .6 Adhesion face strength TT-S-00230C
    - .1 Peel strength:
      - .1 Aluminum: 3.4 N/mm
      - .2 Glass: 3.4 N/mm
      - .3 Concrete: 3.4 N/mm
    - .2 Bond loss:
      - .1 Aluminum: 0%
      - .2 Glass: 0%
      - .3 Concrete: 0%
  - .7 Weather resistance: Excellent
  - .8 Ozone resistance: Excellent

- .9 Tear resistance: Excellent
- .10 Colour: complementary with adjacent surface
- .2 Type 2 : Sealant with two (2) components, urethane-based, non-sagging, to CAN/CGSB-19.24, type 2, grade B, for roof work.
  - .1 Relative density: 1.237
  - .2 Application temperature: 4° to 38°C
  - .3 Service temperature: -40° to 77°C
  - .4 Reversible deformation ASTM C719: >50%
  - .5 Tensile properties ASTM D412:
    - .1 Tensile strength: 0.62 MPa
    - .2 Elongation at rupture: 300%
    - .3 Modulus of elasticity:
      - .1 100% for 0.48 MPa
  - .6 Adhesion-in-peel strength TT-S-00227E
    - .1 Peel strength:
      - .1 Concrete: >2.63 N/mm
    - .2 Bond loss:
      - .1 Aluminum: 0%
      - .2 Glass: 0%
      - .3 Concrete: 0%
  - .7 Weather resistance: Excellent
  - .8 Ozone resistance: Excellent
  - .9 Tear resistance: Excellent
  - .10 Colour: complementary with adjacent surface.

### **2.3 Sealants - locations**

- .1 Around door and window frames: Type 1 product.
- .2 Flashing work: Type 1 product.
- .3 Roof sealing work: Type 2 product.

### **2.4 Joint cleaning products**

- .1 Non-corrosive and non-staining cleaning products, compatible with materials of joints and sealants, and recommended by manufacturers of sealants.
- .2 Primer: Clear primer to promote adhesion of polyurethane-based sealing product for joints on metal substrates as recommended by manufacturer.

## **PART 3 - EXECUTION**

### **3.1 Work protection**

- .1 Protect work installed by third parties against soiling and other forms of contamination.

### **3.2 Surfaces preparation**

- .1 Verify joint dimensions and condition of surfaces to achieve appropriate joint depth/width ratio for installation of backing foam and sealants.
- .2 Remove dust, rust, oil, and all foreign matter from joint surfaces.
- .3 Do not apply sealing products on joint surfaces treated with sealer, curing compound, water repellent or any other type of coating unless prior tests have confirmed the compatibility of these materials. If needed, remove coats covering the surfaces.
- .4 Ensure joint surfaces are properly dried and not frozen.
- .5 Prepare surfaces in accordance with manufacturer's instructions.

### **3.3 Primer application**

- .1 To prevent staining, mask adjacent surfaces with tape prior to priming and caulking.
- .2 Prime sides of joints to manufacturer's directions immediately prior to sealant.
- .3 Primer is required for application of type 2 product on copper roof surfaces.

### **3.4 Installation of backing foam**

- .1 Apply bond breaker tape where required in accordance with manufacturer's instructions.
- .2 While compressing to approximately 30 ~ 50 %, apply backing foam according to depth and along profile of joint.

### **3.5 Proportioning**

- .1 Measure out components and strictly observe instructions by sealant manufacturer.

### **3.6 Application**

- .1 Application of sealant
    - .1 Apply sealant in accordance with manufacturer's written instructions.
    - .2 Apply tape on edge of surfaces to receive joints to form clean joints.
    - .3 Apply sealant in a continuous bead.
    - .4 Apply sealant using a gun fitted with proper size nozzle.
    - .5 Use sufficient pressure to fill voids and joints solid.
    - .6 Form continuous bead of sealant smooth, free of ridges, wrinkles, sags, air pockets, embedded impurities, etc.
    - .7 Before joint 'skins over', neatly tool surface to a slight concave joint.
    - .8 Remove excess sealant as work progresses and at completion.
-

- .2 Drying
  - .1 Ensure drying and hardening of sealant in accordance with instructions by product manufacturer.
  - .2 Do not cover joints formed with sealant before they are completely dry.
- .3 Cleaning
  - .1 Clean adjacent surfaces immediately and leave work neat and clean.
  - .2 Remove excess sealant and droppings, using recommended cleaning products as work progresses.
  - .3 Remove masking tape after initial cure time of joints.

**END OF SECTION**

## **PART 1 - GENERAL**

### **1.1 Section includes**

- .1 Humidity and substrate moisture content level.
- .2 Surface preparation of substrates as required for acceptance of paint, including cleaning, small crack repair, patching, caulking, and making good surfaces and areas to the limits defined under MPI Repainting Maintenance Manual. Specific pre-treatments noted herein or specified in the MPI Repainting Maintenance Manual.
- .3 In addition to temporary ventilation systems installed by other trades, provide and install safe and efficient ventilation equipment where toxic, volatile or flammable products are used.

### **1.2 Precedence**

- .1 In the case of work performed for the federal government, Division 1 sections have precedence over the technical sections in any other division of project specification.

### **1.3 Related sections**

- .1 Section 01 33 00 - Submittals.
- .2 Section 01 61 00 - Common product requirements.
- .3 Section 01 73 00 – Execution.
- .4 Section 01 78 00 - Closeout submittals.
- .5 Section 05 50 00 – Metal fabrications.
- .6 Section 06 20 00 – Finish carpentry.

### **1.4 Quality assurance**

- .1 Contractor to be experienced in the performance of work prescribed in this section.
  - .2 Paintwork to be performed by qualified workers holding a tradesman certificate of competence. Apprentices may be employed provided they work under the direct supervision of a qualified journeyman in accordance with trade regulations.
  - .3 Comply with the most recent MPI requirements applicable to exterior paintwork including for preparation of surfaces, priming and paint application.
  - .4 Any products used, whether primers or paints, coatings, varnishes, stains, shellacs, filler materials, thinners, solvents and others must be listed in the 'approved products' section of the MPI Painting Specification Manual; in addition, all products incorporated in the chosen painting system shall be made by the same manufacturer.
  - .5 Other paint products such as linseed oil, lacquers and turpentine spirit shall be compatible with other coatings as needed and shall be of the highest quality. Obtain other products from approved manufacturers listed in the MPI Painting Specification Manual.
  - .6 Keep purchase orders, invoices, and other documents useful to establish upon request by Departmental Representative, compliance of work with specified MPI requirements.
  - .7 Quality standard:
-

- .1 Walls: no visible defect at a distance of 1000 mm, from a 45 degree angle relative to surface examined.
- .2 Ceiling: no visible defect to an observer on the ground, from a 45 degree angle relative to surface examined under final lighting conditions.
- .3 The colour and sheen of finishing coat shall be uniform over entire surface area examined.

### **1.5 Submittals**

- .1 Submit required documents and samples in accordance with section 01 33 00 – Submittal procedures.
- .2 Product data
  - .1 Submit required technical data sheets and instructions for every type of paint or coating incorporated in the paint finish.
  - .2 Submit required technical data sheets pertaining to the application or the use of paint thinners.
  - .3 Submit two (2) copies of material safety data sheets (MSDS) required under the Canadian Workplace Hazardous Materials Information System (WHMIS) for products in compliance with this system and in accordance with section 01 33 00 – Submittal procedures. Data sheets to indicate products' VOC emission rates during application and curing.
  - .4 Submit documents signed by the manufacturer and certifying that the products, coatings and other materials comply with prescriptions with respect to physical properties and performance criteria.
  - .5 Submit instructions supplied by the manufacturer concerning preparation and application.

### **1.6 Scope of work**

- .1 Supply and installation of primers and paints on different materials to match adjacent finishes following outside repair to and new construction of walls, and adequate overhaul of existing adjacent sections.

### **1.7 Storage and handling**

- .1 Storage and protection
  - .1 Provide and maintain a secure, dry, climate-controlled area.
  - .2 Store materials and products away from heat sources.
  - .3 Store materials and products in a well ventilated location meeting the minimum temperature requirements of paint manufacturer.
- .2 Fire safety requirements
  - .1 Provide one [1] 9-kg ABC dry chemical fire extinguisher and place near paint products storage area.
  - .2 Materials that constitute a fire hazard (paints, solvents, drop clothes, etc.) shall be stored in suitable closed and ULC-rated containers and removed from the site on a daily basis..
  - .3 Handle, use, store and dispose of flammable and combustible products and materials in accordance with the National Fire Code of Canada.

### **1.8 Waste management and disposal**

- .1 Remove from work site all packaging materials and redirect to appropriate recycling facility.
  - .2 Store waste in designated areas or containers, including product tubes and containers defined as toxic or dangerous.
-

- .3 Paints, lacquers, wood preservation products and related products such as thinners and solvents are considered hazardous and are subject to applicable regulations regarding disposal. Information concerning applicable regulations may be obtained from Provincial environment ministries and regional administrations having jurisdiction.

## **1.9 Site conditions**

- .1 Heating, ventilation and lighting
  - .1 Provide ventilation of confined spaces.
  - .2 Co-ordinate the use of existing ventilation system with Departmental Representative and, where needed, operate system during and after performance of work.
  - .3 Provide required lighting equipment and maintain lighting level of surfaces to be painted to 323 lux minimum.
- .2 Ambient temperature, relative humidity and substrate moisture content
  - .1 Apply paint when ambient temperature and substrate temperature in work area can be maintained within limits prescribed by both MPI and manufacturer for the entire paint application and curing period.
  - .2 Test plaster, concrete and masonry surfaces for alkalinity.
  - .3 Apply paint only to adequately prepared surfaces when moisture content in latter is within limits indicated by manufacturer of paint product.
- .3 Additional requirements pertaining to application
  - .1 Apply paint products in areas where dust is no longer generated by construction activities and such that airborne particles under wind and ventilation conditions will not affect the quality of finished surfaces.
  - .2 In occupied buildings and facilities, proceed to paint work during unoccupied hours only. Obtain approval of schedule by Departmental Representative and allow for adequate drying and curing time before occupant re-entry.

## **PART 2 - PRODUCTS**

### **2.1 Materials**

- .1 Paint products and coatings listed in the MPI Approved Product List may be used in the work of this project.
  - .2 All products shall be from a single manufacturer for each system used.
  - .3 Paint products meeting the MPI Environmentally Friendly" E2 ratings may be used in the work of this project.
  - .4 Comply with most recent MPI requirements concerning paint coatings, including the preparation of surfaces and the application of primers and paint.
  - .5 Products used in the work, whether primers, paints or other coatings, and varnishes, stains, lacquers, fillers, thinners, solvents, etc., shall be products listed in the MPI - Architectural Painting Specification Manual and the MPI - Maintenance Repainting Manual.
  - .6 Paint products used in the project shall meet MPI Environmentally Friendly" + E2 rating based on VOC (EPA Method 24) content levels.
-

- .7 Prescribe products listed in the MPI Approved Products that are at least rated E2 in order to comply with indoor air quality requirements respecting odours.

## 2.2 Mixing and tinting

- .1 All paints shall be ready-mixed and pre-tinted before delivery to work site according to manufacturer's written instructions. Tinting to be authorised in writing beforehand by Departmental Representative.
- .2 A small quantity of thinner may be added to the paint where needed and in accordance with manufacturer's recommendations. Kerosene and any other similar organic solvent shall not be used to thin water-based paints.
- .3 Dilute paint to be applied by spraying in accordance with manufacturer's instructions.
- .4 Re-mix all paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color and gloss uniformity.

## 2.3 Gloss/sheen ratings

- .1 Paint gloss shall be defined as the sheen rating of applied paint, in accordance with the following standard values:

	Units @ 60 degrees	Units @ 85 degrees
Gloss level 1 - Matte or Flat finish	0 to 5	10 maximum
Gloss level 2 - Velvet finish	10 maximum	10 to 35
Gloss level 3 - Eggshell finish	10 to 25	10 to 35
Gloss level 4 - Satin finish	20 to 35	35 minimum
Gloss level 5 - Semi-Gloss finish—traditional	35 to 70	
Gloss level 6 - Semi-Gloss finish—traditional	70 to 85	
Gloss level 7 - High-Gloss finish	> 85	

- .2 Gloss level ratings of all painted surfaces shall be as specified herein.

## 2.4 Painting – New exterior painting work

- .1 Galvanized and zinc coated metal:
  - .1 N-EXT-1 system:
    - .1 Preparation of surfaces:
      - .1 Roughen surfaces to be painted, sanding manually or mechanically.
      - .2 Clean and dust off all surfaces.
      - .3 Treat all surfaces with solution of phosphoric acid.
    - .2 Finishing paint:
      - .1 Apply two (2) coats of urethane two-component solvent-based enamel
        - .1 Density: 2.76 kg/l
        - .2 % zinc: 90% in weight of dry coating
        - .3 Dry extract: 47.6% in volume
        - .4 Viscosity: 85 – 90 KU / Krebs Stormer Units at 20°C
        - .5 Category: A/i
        - .6 Heat resistance: 300°C

- .7 Recommended thickness: 35 µm dry, i.e., 75 µm humid.
- .3 Colour: as per existing.
- .2 Ferrous metals, treated or not:
  - .1 N-EXT-2 painting system:
    - .1 Apply one (1) zinc phosphate metal priming coat.
      - .1 Touch-up uncovered areas of prepared surfaces.
    - .2 Finishing paint:
      - .1 Apply two (2) coats of urethane two-component solvent-based enamel
        - .1 Density: 2.76 kg/l
        - .2 % zinc: 90% in weight of dry coating
        - .3 Dry extract: 47.6% in volume
        - .4 Viscosity: 85 – 90 KU / Krebs Stormer Units at 20°C
        - .5 Category: A/i
        - .6 Heat resistance: 300°C
        - .7 Recommended thickness: 35 µm dry, i.e., 75 µm humid.
  - .3 Colour: as per existing.

## 2.5 Paints – Exterior refurbishment work

- .1 Galvanized and zinc coated metal:
  - .1 R-EXT-1 system:
    - .1 Preparation of surfaces:
      - .1 Roughen surfaces to be painted, sanding manually or mechanically.
      - .2 Clean and dust off all surfaces.
      - .3 Treat all surfaces with solution of phosphoric acid.
    - .2 Finishing paint:
      - .1 Apply two (2) coats of urethane two-component solvent-based enamel
        - .1 Density: 2.76 kg/l
        - .2 % zinc: 90% in weight of dry coating
        - .3 Dry extract: 47.6% in volume
        - .4 Viscosity: 85 – 90 KU / Krebs Stormer Units at 20°C
        - .5 Category: A/i
        - .6 Heat resistance: 300°C
        - .7 Recommended thickness: 35 µm dry, i.e., 75 µm humid.
    - .3 Colour: as per existing.
  - .2 Ferrous metals, treated or not:
    - .1 R-EXT-2 system:

- .1 Apply one (1) coat of zinc phosphate metal primer.
  - .1 Touch-up uncovered areas of prepared surfaces.
- .2 Finishing paint:
  - .1 Apply two (2) coats of urethane two-component solvent-based enamel
    - .1 Density: 2.76 kg/l
    - .2 % zinc: 90% in weight of dry coating
    - .3 Dry extract: 47.6% in volume
    - .4 Viscosity: 85 – 90 KU / Krebs Stormer Units at 20°C
    - .5 Category: A/i
    - .6 Heat resistance: 300°C
    - .7 Recommended thickness: 35 µm dry, i.e., 75 µm humid.
- .3 Colour: as per existing.

## **PART 3 - EXECUTION**

### **3.1 General**

- .1 Conformity: comply with manufacturer's written requirements, recommendations and specifications, including any available technical bulletin, to instructions pertaining to handling, storage and installation of products and to indications on technical data sheets.
- .2 Unless otherwise indicated, prepare interior surfaces and perform paint work to requirements of MPI Architectural Painting Specifications Manual and MPI Maintenance Repainting Manual.

### **3.2 Inspection**

- .1 Proceed to inspection of existing substrates and assess whether their condition is likely to jeopardize the adequate preparation for application of coatings and paint products. Before paint work is undertaken and as the case may be, notify Departmental Representative of any damage and unsatisfactory or unfavourable conditions identified in the process.
- .2 Conduct moisture testing of surfaces to be painted using properly calibrated electronic moisture meter, except test concrete floors for moisture using simple "cover patch test". Do not proceed with work until conditions fall within acceptable range as recommended by manufacturer.

### **3.3 Preparation**

- .1 Protection
  - .1 Protect existing building surfaces and adjacent structures from paint spatters, markings and other damage by suitable non-staining covers or masking. If damaged, clean and restore surfaces as directed by Departmental Representative.
  - .2 Protect items that are permanently attached such as Fire Labels on doors and frames.
  - .3 Protect factory finished products and equipment.

.2 Surface Preparation

- .1 Remove electrical cover plates, light fixtures, surface hardware on doors, bath accessories and other surface mounted equipment, fittings and fastenings prior to undertaking painting operations. Identify and store items in secure location and re-installed after painting is completed..
- .2 Move and cover furniture and portable equipment as necessary to carry out painting operations. Replace as painting operations progress.
- .3 Place "WET PAINT" signs in occupied areas as painting operations progress. Signs to approval of Departmental Representative.
- .4 Clean and prepare interior surfaces in accordance with MPI - Architectural Painting Specification Manual and MPI - Maintenance Repainting Manual specific requirements and coating manufacturer's recommendations.
- .5 Prevent contamination of cleaned surfaces by salts, acids, alkalis, other corrosive chemicals, grease, oil and solvents before prime coat or paint finish is applied and between applications of remaining coats. Apply primer, paint, or pre-treatment as soon as possible after cleaning and before deterioration occurs.
- .6 Where possible, prime non-exposed surfaces of new wood surfaces before installation. Use same products as specified for exposed surfaces.
- .7 Apply vinyl sealer to MPI #36 requirements over knots, pitch, sap and resinous areas.
- .8 Apply wood filler to nail holes and cracks.
- .9 Tint filler to match stains for stained woodwork.
- .10 Sand and dust between coats as required to provide adequate adhesion for next coat and to remove defects visible from a distance up to 1000 mm.
- .11 Touch up of shop primers/paint with product as specified.
- .12 Paint only after prepared surfaces have been accepted by Departmental Representative.

**3.4 Application**

- .1 Use method of application approved by Departmental Representative. Conform to manufacturer's application recommendations unless otherwise instructed.
- .2 Apply coats of paint in continuous film of uniform thickness. Repaint thin spots or bare areas before next coat of paint is applied.
- .3 Allow surfaces to dry and properly cure after cleaning and between subsequent coats for minimum time period as recommended by manufacturer.
- .4 Sand and dust between coats to remove visible defects.
- .5 Finish surfaces both above and below sight lines as specified for surrounding surfaces, including such surfaces as tops of interior cupboards and cabinets and projecting ledges.
- .6 Finish top, bottom, edges and cut-outs of doors after fitting as specified for door surfaces.
- .7 Where paint touch-up is needed, redo entire surface until change of direction is encountered.

**3.5 Electrical and mechanical equipment**

- .1 Paint conduits, piping, hangers, ductwork and other mechanical and electrical equipment exposed in finished areas, to match adjacent surfaces, except as indicated.
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- .2 Do not paint over nameplates.
- .3 Keep sprinkler heads free of paint.
- .4 Paint fire protection piping red : alarm system switches and emergency lighting.

**END OF SECTION**

**Foundation:**

- Scaffolding shall be installed on a solid foundation so that it does not slip or rock.
- Contractors wishing to install scaffolding on a roof, overhang, canopy or awning shall submit their calculations and loads to the Engineer and shall obtain permission from the Engineer before beginning installation.

**Assembly, bracing and mooring:**

- All scaffolding shall be assembled, braced and moored in accordance with the manufacturer's instructions and the provisions of the *Safety Code for the construction industry*.
- Where a situation requires the removal of part of the scaffolding (e.g., crosspieces), the Contractor shall submit an assembly procedure signed and sealed by an engineer certifying that the scaffolding assembled in that manner will allow the work to be done safely given the loads to which it will be subject.
- For scaffolding where the span between two supports is greater than 3 m, the Contractor shall provide an assembly plan signed and sealed by an engineer.

**Protection against falls during assembly:**

- Workers working above the ground shall be protected against falls at all times during assembly.
- Before the work begins, the Contractor shall submit to the Engineer a procedure stating the protective measures used and, if applicable, identifying the anchor points for the safety cables or moorings. This procedure shall be in accordance with sections 3.9.4.5, 2.9.1 and 2.10.12 of the *Safety Code for the construction industry* (amended on August 2, 2001).

**Platforms:**

- Scaffolding platforms shall be designed and installed in accordance with the provisions of the *Safety Code for the construction industry*.
- If planks are used, they shall be approved and stamped in accordance with section 3.9.8 of the *Safety Code for the construction industry* (in force January 1, 2002).
- The platforms shall cover the entire surface protected by the guardrails.
- The above notwithstanding, scaffolding 4 sections (or 6 metres) high or higher shall have a full platform covering the entire surface of the putlogs every 3 m or fraction thereof, and the components of that platform shall not be moved at any time to create an intermediate landing.

**Guardrails:**

- A guardrail shall be installed on every landing.
- Cross braces shall not be considered guardrails.
- Where scaffolding 4 sections (or 6 metres) high or higher requiring full platforms is used, guardrails shall be installed on each landing at the start of work and shall remain in place until the work is completed.

**Access:**

- The Contractor shall ensure that access to the scaffolding does not compromise worker safety.
- Where the platforms of the scaffolding are comprised of planks, ladders shall be installed in such a way that planks extending beyond the platform do not block the way up or down.
- Notwithstanding the provisions of the *Safety Code for the construction industry*, stairs shall be installed on all scaffolding that has 6 or more rows of uprights or is 6 sections (or 9 metres) high or higher.

**Protection of the public and occupants:**

- The Contractor shall identify the boundaries of and barricade the work area so as to limit access to authorized workers only.
  - The Contractor shall install covered walkways, nets or other similar devices to protect the public or the occupants against falling objects.
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**Use of public thoroughfares:**

- Where it is necessary to encroach on a public thoroughfare, the Contractor shall obtain at the Contractor's expense any authorizations and permits required by the competent authority.
- The Contractor shall install at the Contractor's expense any signage, barricades or other devices needed to ensure the safety and security of the public and the Contractor's own facilities.

**END OF SECTION**

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Note: The recommendations and precaution measures described in this Appendix concerning the cleaning of bird droppings are quoted from BLANCHARD, M. (2001) *Les risques sanitaires reliés aux déjections de pigeon en milieu de travail au Québec – mesures de prévention*. Environmental health engineering graduate thesis, École Nationale de la Santé Publique, Université de Montréal.

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Whereas the cleaning of bird droppings entails health hazards for workers and environmental risks, the recommendations and precaution measures herein described must be complied with.

### 1.0 Humidification and disposal of droppings

In order to avoid as much as possible the resuspension of dust likely to contain infectious agents, the Contractor shall humidify with a field sprayer any dry bird droppings until they form a clump in which dust is locked and can no more be released.

It should be noted that water under pressure is prohibited at this stage for the cleaning of bird droppings. As indicated on the drawings, water under pressure may be used only when all droppings have been collected.

When droppings have been humidified, the Contractor shall collect the droppings with a shovel and dispose of them in double thickness heavy duty plastic bags or in sealed, waterproof and clearly identified containers. Containers shall be removed with care to prevent any perforation, punctures during transportation. Bird droppings must be viewed as infectious material and be directed to the appropriate treatment facility. When disposing of these wastes, the Contractor shall comply with the requirements of the Environment Quality Act and of any other applicable federal or provincial regulation. Before work is undertaken, the quantity of such waste must be assessed prior to treatment, at least approximately (density of droppings is in the range of 700 kg/m<sup>3</sup>). Contacts should be taken with landfill, disposal or incineration sites in order to determine the treatment and disposal measures for this type of material.

### 2.0 Site disinfection

After droppings are disposed of, the Contractor shall proceed to a superficial disinfection of the site in order to prevent any subsequent infection. To this end, a sodium hypochlorite solution (javel water) 1 % (10 000 ppm (mg/L) has the requisite properties. A 1% solution of sodium hypochlorite is similar to a 5 to 1 dilution of 5% commercial javel water (1 measure of javel water and 4 measures of plain water). Contact time of disinfectant with surfaces needs to be 30 minutes to ensure optimal efficiency against all microorganisms.

After the removal of droppings, a wash down may be considered before disinfection in order to remove any residues of organic material that could neutralize the action of the disinfectant. Water under pressure is also required after disinfection in order to ensure compatibility of surfaces with concrete repair products and to prevent any reaction with the disinfectant.

The disinfectant may be applied with a sprayer over the entire surface area after cleaning. For outside work in high wind conditions or during heat waves, the Contractor shall spray several times at a few minutes intervals in order to ensure the required 30-minute contact time. Before subsequent work is undertaken, seek and obtain Departmental Representative's approval of disinfected sectors.

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### 3.0 Workers personal protection measures

#### 3.1 **Respiratory protection**

Whereas infectious agents possibly found in bird droppings are transmissible to humans through air and since the sodium hypochlorite solution used as a disinfectant releases chlorine known for its harsh and irritating effects on the mucous membranes, the use of a respiratory protection device is mandatory against the risk of alteration of one's health through inhalation of those two types of pollutants.

The type of respiratory protection should be made according to the level of exposure to bird droppings, i.e., not only individual worker's activities, but also the working environment, the quantity of droppings on site, and exposure duration. Regardless of the model that is chosen, the protective device shall be minimally a high-efficiency cartridge type unit (HEPA or N100) that meets Canadian standards, is NIOSH-certified (National Institute for Occupational Safety and Health) and is used by personnel adequate training on the use and maintenance of respiratory masks.

In addition to this type of respiratory protection designed to safeguard against infectious agents, another type of protection against chemical fumes will be required whenever javel water is used. An appropriate gas filter shall be used (white, with a yellow chlorine strip) and attached to the mask or semi-mask over the particle filter. Disposable coveralls complete with disposable foot coverings shall be worn by all workers contamination of their clothes by pathogens. Workers shall wear gloves as well to prevent cuts and prevent skin and wound infections.

After working in a contaminated zone and before removing the respiratory protection device, workers shall take off their disposable coveralls, gloves and shoe coverings and place them in a heavy duty plastic bag that will be disposed of with the droppings at a sanitary disposal site of incinerator in compliance with all rules and regulations applicable to the type of waste on hand.

#### 3.2 **Personal hygiene measures**

Washbasins and disposable towels shall be made available to the workers who shall at least wash their hands and face before they leave the contaminated zone. Place sanitary installations outside the contaminated zone.

### 4.0 Vacuuming

Where humidification is rendered impossible by the specific nature of the site (water damage), the use of powerful industrial vacuum equipment fitted with high-efficiency filters designed to collect contaminated fines may be an appropriate alternative. Vacuum equipment shall be fitted with 99.97% high-efficiency particulate air filters (HEPA). The use of vacuum tank trucks is also permitted.

**END OF SECTION**

- Lifting devices shall be positioned in such a way that loads are not carried over workers, occupants or the public.
- The Contractor must transmit to Engineer a work procedure, signed and sealed by an engineer, including inter alia the position of the crane, a sketch of the trajectory of the transported loads, the length of the mast and a plan of lifting for the handling of loads above occupied buildings. Engineer can, if judge necessary, impose work of evening and weekend.
- All mobile cranes manufactured after January 1<sup>st</sup> 1980 must be equipped with a safety device against overload.
- All mobile cranes with cables manufactured after January 1<sup>st</sup> 1970, except if they are used for other end than lifting loads, must be provided with a safety device against two-blocking. Regarding mobile cranes with cables manufactured before January 1<sup>st</sup> 1970, they will have to be equipped with the device at the latest on December 31<sup>st</sup> 2006.
- The Contractor shall provide the Engineer with a mechanical service inspection certificate for each lifting device. Inspections must be carried out just prior to the delivery of the equipment to the work site.
- For all winch installations, the Contractor shall provide the Engineer with the installation method recommended by the manufacturer. If unavailable, the Contractor shall then provide an installation procedure signed and sealed by an engineer. The installation procedure must take into account load bearing capacity, the amount, weight and location of counterweight and any other detail that may affect the capacity and stability of the device.
- In addition to the mechanical service inspection certificate, the annual inspection certificate and the crane logbook must be aboard all crane and crane-truck cabs.
- The entire lifting area shall be closed off to prevent non-authorized people from entering it.
- The Contractor shall obtain all of the permits at his own expense, in the event the thoroughfare must be temporarily closed off to meet the requirement stipulated in the preceding paragraph or for any other reason pertaining to the safety of workers, occupants or the public.
- The Contractor shall carefully inspect all of the slings and lifting accessories and make sure that those in poor condition are destroyed or scrapped.
- Compressed-gas cylinders shall be lifted with a basket specially designed for this purpose.

**END OF SECTION**

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The following requirements shall be met for work involving drowning risks:

- Comply with section 2.10.13 of the *Safety Code for the construction industry*.
- (a) Wear a life jacket or buoyancy device that meets the standard set out in the Canadian General Standards Board Standard :
  - CAN/CGSB-65.7-M88, *Life Jackets, Inherently Buoyant Type*, dated April, 1988.
  - Or for few exceptions, be accepted by Transport Canada.
- (b) or be protected by a safety net or a fall protection system.
- Obtain and forward to the Engineer a letter of compliance issued by Transport Canada for the approval of any vessel (transportation, rescue, inspection, etc.) before work begins. (reference: Guy Rondeau, Transport Canada, (418) 648-5334)
- Ensure that a rescue vessel moored and in the water is available for each workstation. However, where the vessel is accessible by land, it may serve more than one workstation provided the distance between any workstation and the vessel is less than 100 m.
- Ensure that the vessel is equipped with a motor powerful enough to overcome the current.
- Ensure that the vessel has the necessary features to accommodate persons likely to be part of a rescue operation.
- Ensure that the rescue vessel is available for workers at all times in case of an emergency.
- Ensure that a qualified person is available to use the emergency equipment. That person must have a pleasure craft operator card for the length of vessel being used.
- Establish written emergency procedures containing the following information and ensure that all workers subject to those procedures have the training and information needed to apply them:
  - . a full description of the procedures, including the responsibilities of the people who have access to the work site;
  - . the location of the emergency equipment.
- Where the work site is a pier, a basin, a jetty, a wharf or any similar structure, a ladder with at least two rungs below the surface of the water shall be installed on the front of the structure every 60 m. This measure shall apply even if the project is a construction project, in which case a temporary (or portable) ladder may be used and removed when the work is complete if the owner does not own the basic facilities. However, the owner must be notified in writing that the site does not comply with the *Canada Labour Code, Part II*.

**END OF SECTION**

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## FALL PROTECTION

### Guardrails

- Installation of guardrails is mandatory. PWGSC may specify certain restrictions with regard to anchoring, in which case the Contractor must make sure that the guardrails meet all of the requirements in section 3.8 of the *Safety Code for the Construction Industry (L.R.Q., S-2.1, r. 6)*
- The Contractor agrees not to remove the guardrails until the project is completed. The Engineer will authorize their removal when he is able to attest that all of the work, inspections and corrections required have been carried out.

### Harnesses

- Workers installing the guardrails shall wear safety harnesses.
- Workers installing and modifying guardrails or flashing shall wear safety harnesses in the event guardrails must be moved temporarily.
- Workers shall wear safety harnesses when receiving material and giving directions to the crane operator next to a drop.
- Safety harnesses shall be worn when carrying out work next to a drop where collective protection is not sufficiently safe.
- The Contractor shall provide a fastening method and safety cable system compliant with section 2.10.12 of the *Safety Code for the Construction Industry (L.R.Q., S-2.1, r. 6)* for each work site or location.

### Ladders

- All ladders must be at least three rungs taller than the access landing.
- All ladders must be attached at their summit so that they cannot slide sideways. The Contractor shall implement a system so that this regulation is abided by during finishing (flashing, etc).

### Scaffolding

- All scaffolding must be inspected and assembled as outlined in the *Safety Code for the Construction Industry (L.R.Q., S-2.1, r. 6)*.
- As needed, plans and compliance certifications must be provided to the Engineer before work begins.
- The Contractor shall make sure that all workers are always protected from falls during scaffolding assembly, as provided in article 3.9.4.5 of the *Safety Code for the Construction Industry (L.R.Q., S-2.1, r. 6)*.

## LIFTING MATERIAL

- The Contractor shall provide the Engineer with a mechanical service inspection certificate for each lifting device. Inspections must be carried out just prior to the delivery of the equipment to the work site.
  - For all winch installations, the Contractor shall provide the Engineer with the installation method recommended by the manufacturer. If unavailable, the Contractor shall then provide an installation procedure signed and sealed by an engineer. The installation procedure must take into account loadbearing capacity, the amount, weight and location of counterweight and any other detail that may affect the capacity and stability of the device.
  - In addition to the mechanical service inspection certificate, the annual inspection certificate and the crane logbook must be aboard all crane and crane-truck cabs.
  - Lifting devices shall be positioned in such a way that loads are not carried over workers, occupants or the public.
  - The entire lifting area shall be closed off to prevent non-authorized people from entering it.
  - The Contractor shall obtain all of the permits at his own expense, in the event the thoroughfare must be temporarily closed off to meet the requirement stipulated in the preceding paragraph or for any other reason pertaining to the safety of workers, occupants or the public.
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- The Contractor shall carefully inspect all of the slings and lifting accessories and make sure that those in poor condition are destroyed or scrapped.
- Compressed-gas cylinders shall be lifted with a basket specially designed for this purpose.

#### PROTECTION AGAINST BURNS

- Individuals assigned to the boilers shall wear long sleeves, safety glasses and a face shield when filling the boilers.
- Individuals working with asphalt or other hot liquids shall wear gloves, long sleeves and safety glasses.

#### PROTECTION AGAINST FIRE

- Work on construction sites must be carried out in compliance with *Fire Commissioner of Canada Standard C1 301, Standard for Construction Operations, June 1982*. This standard is available at the following website:

[http://www.hrsdc.gc.ca/eng/labour/fire\\_protection/policies\\_standards/commissioner/301/page00.shtml](http://www.hrsdc.gc.ca/eng/labour/fire_protection/policies_standards/commissioner/301/page00.shtml)

- At the beginning of each shift on every site, the Contractor shall obtain a Hot Work Permit issued by the person in charge of the work location.
- A working portable fire extinguisher suitable to the fire risk shall be available and easily accessible within a 5 m radius from any flame, spark source or intense heat.
- An individual shall be appointed to go on rounds (fire) for a period of 30 minutes after the end of the shift. This individual shall countersign the permit and give it to the person in charge of the work site (or the individual he/she appoints) after the 30 minutes period.
- The storage of propane cylinders shall comply with the **CAN/CSA-B149.2-F00 Propane Storage and Handling Code** and meet the specific conditions outlined in this document. The cylinders shall be stored outdoors, in a safe place, away from any unauthorized handling, in a storage cabinet specially designed for this purpose. The cylinders shall be securely kept upright and locked at all times in a place where no vehicles are allowed, unless the cylinders are protected by bars or the equivalent.
- Compressed gas, fuel tanks or containers must be stored at least 10 m from any buildings.
- The number of propane cylinders on the roof shall not exceed the number of cylinders necessary for a day's work, and cylinders shall at all times be secured upright or held in a cart designed for this purpose.
- All of the cylinders used or stored on the work site shall be equipped with a collar designed to protect the valve.
- Filling the cylinders on the work site is forbidden, unless a procedure compliant with the CAN/CSA B149.2 standard is approved and authorized by the Engineer.

#### MATERIAL AND WASTE MANAGEMENT

- On the roof, light material and sheet material shall be kept in containers or be securely fastened. In the event this requirement is disregarded in the slightest way, the Engineer may disallow the storage of materials on the roof.
  - The preceding paragraph also applies to waste.
  - Waste shall be discarded as produced using a waste chute or appropriate containers.
  - All waste must be removed from the roof at the end of shifts.
  - Unless otherwise authorized by the Engineer, all waste bins must be placed at least 3 m from any structure or building.
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#### GENERAL PROTECTION AND WORK SITE ORGANIZATION

- Regardless of the circumstances and the nature of the work, individuals with access to the work site must wear protective footwear and hard hats. The Contractor shall provide chin cups or ratchet suspension helmets to workers who must bend over or crouch down.
- Covered passageways shall be set up to protect all entrances and exits.
- A safety perimeter on the ground must be placed under the work zone in order to protect the public and the occupants.
- The ground work site, material handling area and boiler area shall be clearly sealed off to prevent occupants or the public from accessing the site and areas.
- Before installing any device that may emit gas or fumes, the Contractor shall receive authorization from the person in charge of the work site, who shall make sure that there is no risk of gas or fumes infiltrating the building's ventilation system.
- The Contractor shall make sure that the work site is kept clean and tidy for the duration of the work.
- Copies of material safety data sheets of all controlled products shall be forwarded to the Engineer and to the person responsible of the work site before work begins.

The Contractor shall provide sanitary facilities and rest areas compliant with requirements of the *Safety Code for the Construction Industry*.

**END OF SECTION**



1. The Contractor must ensure that any person carrying out work that poses a risk of falling more than 2,4 m use fall protection equipment.
2. Plan and organize work so as to eliminate the danger at source or ensure collective protection, thereby minimizing the use of personal protective equipment. When personal fall protection is required, workers must use a safety harness that complies with CSA standard CAN/CSA Z-259.10 M90. A safety belt must not be used as fall protection.
3. Every person using an elevating platform must have a training regarding this equipment.
4. Wearing of safety harness is obligatory in any elevating platform with telescopic , articulated or rotary boom.
5. Delimit a danger zone in any place where equipment for work in height is used.
6. Everyone who works within 3 meters from the edge of a roof must use a safety harness in accordance with the regulation, unless there is presence of a guardrail on the perimeter of the roof which is between 900 mm to 1100 mm high.

**END OF SECTION**

